AF Life Cycle Management Center

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LIFE CYCLE INDUSTRY DAYS

Owning the Technical Baseline

Ken Barker, Ph.D., SL
USAF Senior Leader
for Systems Engineering

View from the Top

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"In the more than 60 years that have passed since the Air Force's founding, our engineers and scientists continue to lead the world in the development of those cutting-edge weapon systems vital to the security of our nation and its allies."

"Air Force technological achievements are based upon the ingenuity of our engineering and scientific workforce."

Excerpt from 2014-2024 Engineering Enterprise Strategic Plan

Strategic Guidance

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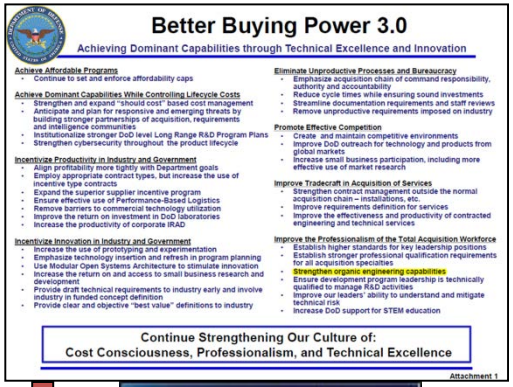
AF Strategic Planning

… a requirements process and acquisition system that accommodates more frequent "pivot points" – opportunities to modify or abandon a program during its life cycle – and harnesses rapid prototyping …


Better Buying Power 3.0

Achieving Dominant Capabilities through Technical Excellence and Innovation

Achieve Affordable Programs
- Continue to set and enforce affordability caps

Achieve Dominant Capabilities While Controlling Lifecycle Costs
- Strengthen and expand "should cost" based cost management
- Anticipate and plan for responsive and emerging threats by building stronger partnerships of acquisition, requirements and intelligence communities
- Institutionalize stronger DoD level Long Range R&D Program Plans
- Strengthen cybersecurity throughout the product lifecycle

Incentivize Productivity in Industry and Government
- Align profitability more tightly with Department goals
- Employ appropriate contract types, but increase the use of incentive type contracts
- Expand the superior supplier incentive program
- Ensure effective use of Performance-Based Logistics
- Remove barriers to commercial technology utilization
- Improve the return on investment in DoD laboratories
- Increase the productivity of corporate IRAD

Incentivize Innovation in Industry and Government
- Increase the use of prototyping and experimentation
- Emphasize technology insertion and refresh in program planning
- Use Modular Open Systems Architecture to stimulate innovation
- Increase the return on and access to small business research and development
- Provide draft technical requirements to industry early and involve industry in funded concept definition
- Provide clear and objective "best value" definitions to industry

Eliminate Unproductive Processes and Bureaucracy
- Emphasize acquisition chain of command responsibility, authority and accountability
- Reduce cycle times while ensuring sound investments
- Streamline documentation requirements and staff reviews
- Remove unproductive requirements imposed on industry

Promote Effective Competition
- Create and maintain competitive environments
- Improve DoD outreach for technology and products from global markets
- Increase small business participation, including more effective use of market research

Improve Tradecraft in Acquisition of Services
- Strengthen contract management outside the normal acquisition chain – installations, etc.
- Improve requirements definition for services
- Improve the effectiveness and productivity of contracted engineering and technical services

Improve the Professionalism of the Total Acquisition Workforce
- Establish higher standards for key leadership positions
- Establish stronger professional qualification requirements for all acquisition specialties
- Strengthen organic engineering capabilities
- Ensure development program leadership is technically qualified to manage R&D activities
- Improve our leaders' ability to understand and mitigate technical risk
- Increase DoD support for STEM education

Continue Strengthening Our Culture of:
Cost Consciousness, Professionalism, and Technical Excellence

Attachment 1

Achieve Dominant Capabilities while Controlling Lifecycle Costs
Increase the use of prototyping and experimentation
Improve Requirements Definition
Strengthen Organic Engineering Capability
Improve our leaders ability to understand and mitigate technical risk

Priority 1: Refine engineering enterprise governance, roles and responsibilities, and supporting policy
Priority 2: Enable high-quality engineering decisions and seamless comms
Priority 3: Improve engineering discipline through technical information management and standardization
Priority 4: Address engineering enterprise workforce issues, including core competencies, structure, development, and assignment

SAF/AQ
Own the Technical Baseline

Own the Technical Baseline

- **What Does OTB Mean?**
  - **Having the necessary technical resources with the right competencies (skills) to understand, influence, enhance, and manage life cycle design and sustainment trades**
  - **Possessing the technical expertise necessary to engage effectively with industry experts**
  - **Conducting independent analysis to verify contractor assertions**
  - **Being an informed decision maker & buyer**

- **What Does OTB not Mean?**
  - **Always having to "own the data," or even always having to have "unlimited rights" to data**
    - **A note about [technical] data rights: Did you know….?**

What Do We Need in Order to "OTB?"

Three Things

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1. **The right number of engineers with the strong technical competencies***
   - ~60% manned today with critical competency gaps
   - Training critical, without which will not have currency – need AF commitment
2. **Access to engineering data**
   - Sometimes dependent on having the data rights
3. **The necessary engineering analytic capability**
   - MS&A Tools & Infrastructure

***Note: Strengthening technical competencies requires a paradigm shift**

- Technically challenging work
  - » Not just managing projects
- Training and mentoring
- PMs/Chief Engineers/Supervisors demanding independent analyses & technical rigor
  - » Not simply reviewing contractor's work

OTB Metrics

- **How will we measure OTB?**
  - **Workforce metrics (#s & Skills)**
  - **OTB attributes metrics (per life cycle phase)**

Workforce Metric

Program	Total Rqmt/Filled	Govt Civ Auth/Filled	Govt Other Auth/Filled	Technical Skill Gaps	Mitigation Strategy
Program 1	31/21	5/5	26/16	▪ Sustainment ▪ Reliability ▪ Production	FFRDC and A&AS

- **Total Rqmnt/Filled implies "Total Force"**
  - **Gov't civilian + military + contractor (A&AS) + FFRDC**
- **Gov't Civ Auth/Filled = # Govt Civs authorized (UMD; includes authorized overhires)**
- **Gov't other are military and A&AS/FFRDC authorized and filled**
- **List skill gaps (Technical Disciplines from approved taxonomy)**
- **Identify mitigation strategy**

OTB Attributes Metric

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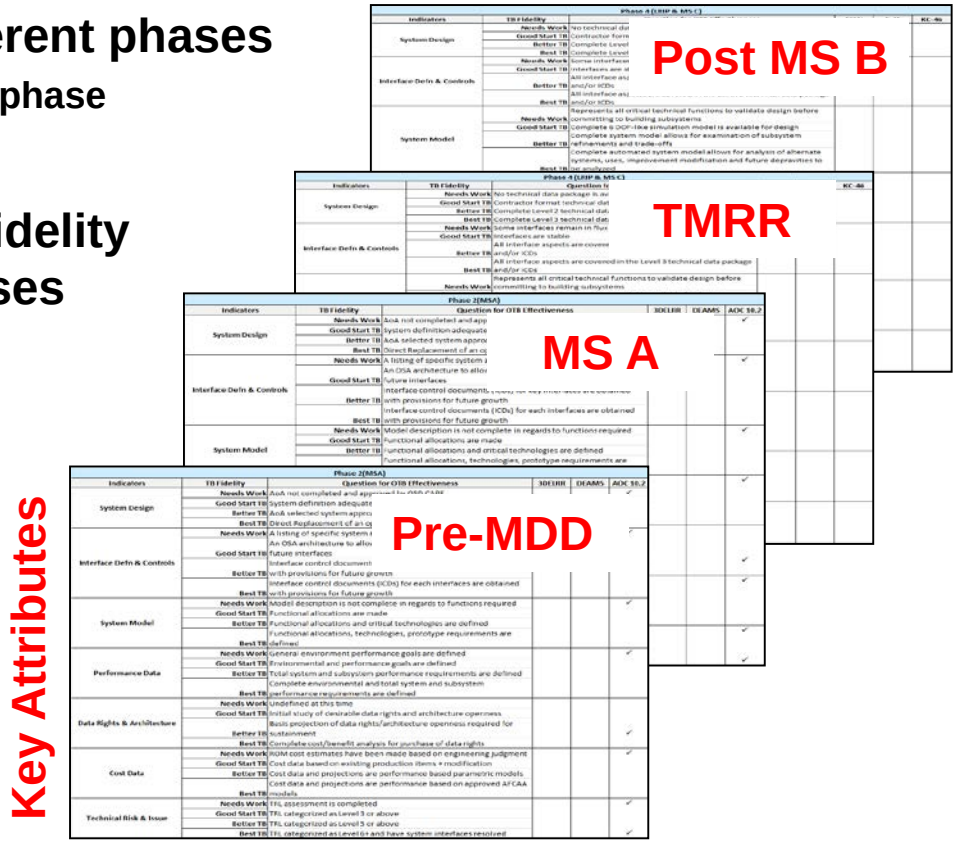
- **OTB ownership is a dynamic process**
  - **Like being physically fit…must be vigilant to gain & maintain**
- **Recognizes programs are in different phases**
  - **What it takes to "OTB" varies in each phase**
- **Key OTB Attributes are common regardless the phase, however, fidelity of information/knowledge increases**
- **Key OTB Attributes:**
  - **System Design**
  - **Interface Controls**
  - **End-to-End System model and ability to exercise it**
  - **Development and Operational Performance Data**
  - **Data rights and open architectures**
  - **Cost Data**
  - **Technical Risks & Issues**



Example: Program in TMRR Phase OTB Key Attributes Metric

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Program	System Design	Interface Defn & Controls	System Model	Performance Data	Data Rights & Architecture	Cost Data	Tech risk & Issues
Program 1	✓	✓	✓	✓	Good Start	✓	✓

Spreadsheet: OTB_Assessment

TMRR Phase			
Key Attribute	TB Fidelity	Question for OTB Effectiveness	Program Assessment
System Design	Needs Work	No testing has been completed	
	Good Start TB	Baseboard prototypes of subsystems have been tested	
	Better TB	Subsystem prototypes have been successfully tested	✓
	Best TB	Complete system prototypes have been successfully tested	
Interface Defn & Controls	Needs Work	List of interfaces	
	Good Start TB	Specific interface control documents (ICDs) for each interface are obtained with provisions for future growth	
	Better TB	All interface standards are set and maintained by the contractor and controlled by the US government client for the configuration control	✓
	Best TB	Interface standards are set and maintained by a third party national level organization	
System Model	Needs Work	Model does not represent complete system	
	Good Start TB	Rudimentary engineering model allowing for partial design refinement	
	Better TB	System model represents all critical technical functions to validate design before committing to building subsystems (CDR-level data)	
	Best TB	Complete 6 DOF like simulation model is done for design	✓
Performance Data	Needs Work	Total system and subsystem performance requirements are defined	
	Good Start TB	Complete environmental and total system/subsystem performance requirements are defined	
	Better TB	Complete environmental and total system/subsystem performance requirements are proven by simulation testing in SoS	✓
	Best TB	Complete environmental and total system/subsystem performance requirements are proven by simulation, studies in SOS analysis	
Data Rights & Architecture	Needs Work	Data rights and open architecture strategy in progress	
	Good Start TB	Strategy allows for trade space in data rights	✓
	Better TB	Data rights and open architecture strategy developed, impact to sustainment modernization understood	
	Best TB	Open system architecture for form fit and function and necessary data rights acquired	
Cost Data	Needs Work	Incomplete cost analysis for some systems	
	Good Start TB	Service cost position is established and reconciled with CAPE estimates for a DoD service approved cost baseline (as applicable)	
	Better TB	Certified Earned Value Management System is in place and audited	
	Best TB	Certified Earned Value Management System is in place, audited and IBR has been completed and placed on EMD contract	✓
Technical Risk & Issues	Needs Work	TRA not complete	
	Good Start TB	TRA Complete and Level 6+	
	Better TB	TRA complete, Level 6+ and risk mitigation process up and running	
	Best TB	TRA complete and risk mitigation process up and running with US government control	✓

Short of Getting Additional Engineers, What Can We Do? What Are We Doing?

High Priority Initiatives

- **Executing (3rd Year) AF Engineer Strategic Plan to "Fix Engineering"**
  - **10-Year Plan, Signed by SECAF in 2013**
  - **4 Priorities, 10 Goals, 53 Objectives**
  - **Highly Complimentary to OTB**
- **Three (of several) Key Focus Areas:**
  - **Competency Management**
    - **Understanding Competency Requirements (The Demand)**
    - **Knowing our Workforce Competencies (The Supply)**
    - **Spotlighting Gaps/Identifying Technical Risks Associated with Gaps**
    - **Mitigating Gaps/Risks**
  - **Analytical Tools/Facilities**
    - **Deploying Physics-Based Tools**
    - **Standing-Up Engineering Labs/Learning Environments**
    - **Performing Independent Analyses/Verifying Contractor Assertions**
  - **Engineering & Technical Authority (E&TA)**
    - **Clarifying/Re-Establishing unique E&TA authorities, independent from PM/PEO chain**

Did You Know that AFLCMC Has an Objective Related to OTB?

Objective 1.2
Increase Use of Common Solutions and Standards

- **Champions: (LP, HI, IN Directors)**
- **2 Initiatives**
  - **1.2.1. Develop and publish a technical process guide to the AFLCMC Process Directory (APD) that provides clear guidance and metrics on "Owning the Technical Baseline (OTB)" for use by programs**
    - **Champion: Dr Ken Barker, USAF SE SL**
    - **Lead: Patrick Imlay/EZSI; Members: HI, PK, FM**
  - **1.2.2. Develop and publish a process guide to the AFLCMC Process Directory (APD) for using Open Systems Architecture in programs across all relevant acquisition documents (e.g., RFP, SRD, etc)**
    - **Champion: Mr Mitch Miller, USAF Avionics SL (& Cyber Lead)**
    - **Lead: Chris Garret/EZAC; Members: HI, PK, FM**

Initiative 1.2.1 Own the Technical Baseline (OTB)

Lead: Patrick Imlay/EZSI

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Description: The government applies technical baseline knowledge of Interface Controls, System Design System models, Development and Operational Performance Data, Data rights and open architectures, Cost Data, Technical Risks & Issues in order to be an informed decision maker

What is needed to OTB:

- Competent Technical Experts,
- Access to the right program data/Info
- Engineering Analytical Capability

Objective Supported: 1.2 Increase use of common solutions and standards on two activities

Expected Benefits:

- Program Managers makes informed decisions based on the tech baseline knowledge
- Program engineers can go "toe-to-toe" with contractor engineers
- Earlier course correction--No surprises up chain
- Ensures risks are "on the table" with mitigations

Champion: Dr. Ken Barker

Technical POC: Patrick Imlay

Measure of success:

- OTB standard process or process guide hosted within AFLCMC Process Directory

Core Team:

Patrick Imlay EZSI
Bob Hartz HIQ
Mark Jordan PZC
Don Sorrels FZCE
Mark Sobota AZE

High Level Schedule

✓ SETR Guide and Tailorable Criteria	Mar 16
OTB Standard Process	
Description, Purpose, Entry/Exit Criteria	May 16
Definitions, References, Guidance	May 16
Process Workflow	Sep 16
Work breakdown Structure	Oct 16
Roles & Responsibilities	Oct 16
Metrics and process measurement	Nov 16
Tools, Training	Dec 16
OTB Standard Process Approved	~Jan 17

Summary

- **OTB is one of many complimentary initiatives**
  - **Some say OTB is a natural outcome of sound systems engineering**
- **As we strengthen and restore organic engineering capability, our ability to "OTB" will grow**

What will it take to Own the Technical Baseline?

1. **The right number of engineers with the strong technical competencies**
2. **Access to engineering data**
3. **The necessary engineering analytical capability**


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Rapid Development Integration Facility (RDIF)

Alan Brookshire

Cost and Schedule Reduction Strategy Teaming With Local Businesses

- **Many projects at WPAFB revolve around fielded weapon systems that require adaptive engineering solutions to meet the ever changing warfighter's needs**
  - **Middle management acquisition workforce typically contracts these desired engineering solutions through a prime contractor**
  - **Process proven to be time consuming and expensive**
- **Rapid Development Integration Facility (RDIF) may meet requirements**
  - **After executing over 276 projects and saving over $81M in five years, RDIF is on to something**
  - **RDIF has small agile workforce focused on the engineering solution utilizing organic workforce and teaming with local businesses through IDIQ contract to deliver in reduced time and cost**
  - **Typical RDIF project can be delivered 60-70% faster and cheaper than a prime contractor**

RDIF Mission

Provide rapid adaptive engineering solutions for urgent Warfighter needs - Instill an innovative aircraft development, integration and prototyping culture back into the workforce

Background - Crawl/Walk/Run

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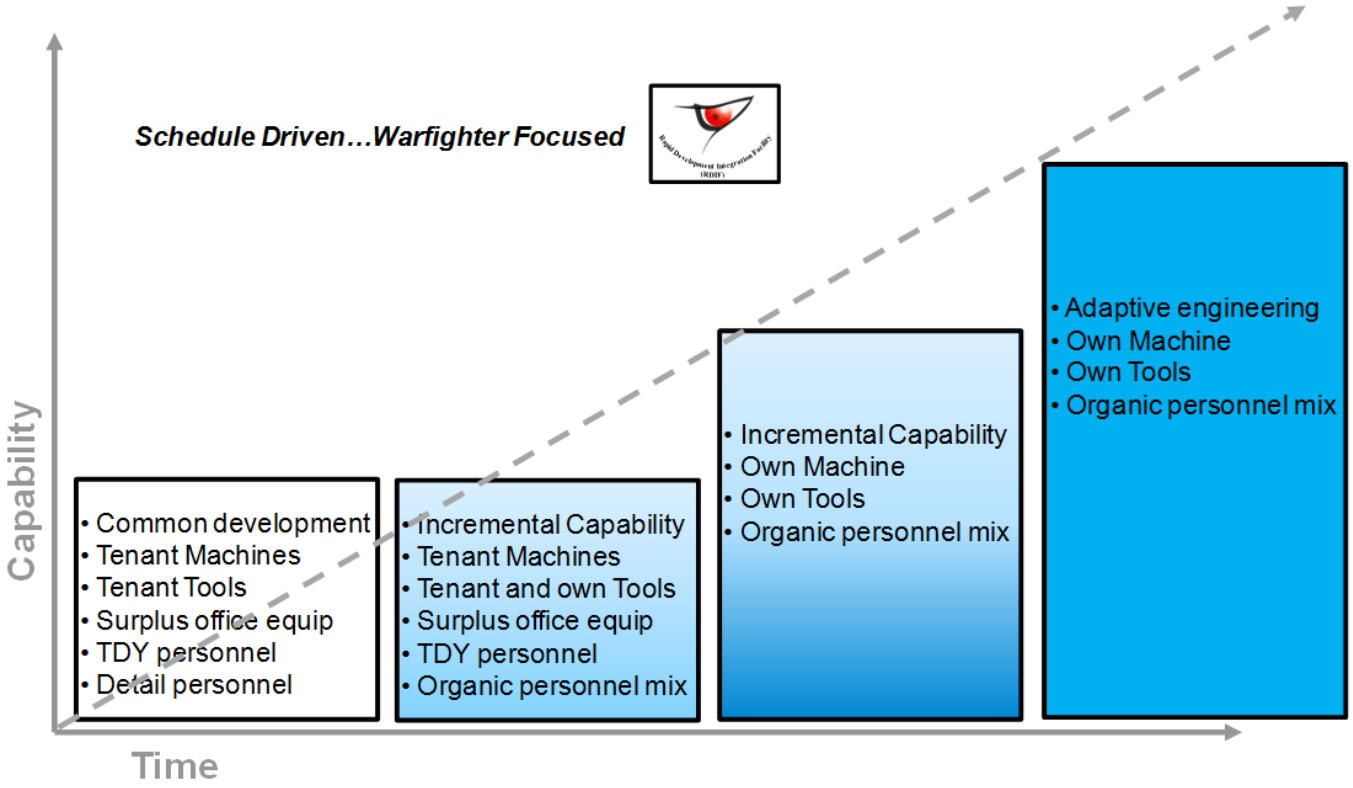
- **Briefed/supported by ASC and AFMC key leadership**
  - **Lt Gen Owen, ASC/CC 10 Dec 09, for sponsorship**
  - **Gen Hoffman, AFMC/CC 9 Mar 10, approved establishment and operation of the RDIF**
- **Authority comes from programs served**



Overview

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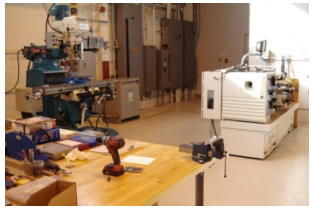
- **Government-owned/government operated facility located on the flight line at WPAFB OH (CAGE Code: 60YL0)**
- **Significant private/government sector experience workforce**
- **20,000 square-foot manufacturing/modification facility**
- **Currently 8 core employees with workforce surge capabilities**
- **IDIQ supporting engineering, prototyping and modifications**

Equipment

- Complete CNC and manual machining center
- Complete sheet metal center
- Tungsten inert gas (TIG), metal inert gas (MIG), and tack welding, grinding, sawing and metal finishing
- Shipping container and wooden jig manufacturing
- Electrical and mechanical assembly stations
- Sand blasting with limited finishing capability
- Complete aircraft/shop specialty tools












Core Competencies

- **Joint and Urgent Operational Needs/Requirements support**
- **Adaptive engineering prototyping**
- **80 percent solutions**
- **DMS recommendations/implementations**
- **Alternative design and analysis solutions**
- **Design and manufacture mechanical solutions**
- **Unique aircraft modifications**
- **Rapid production**

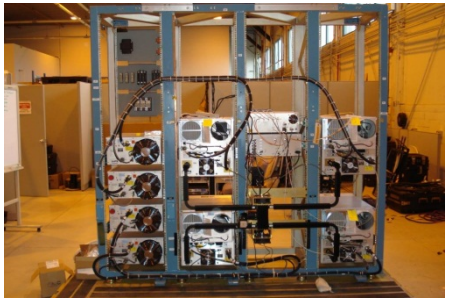


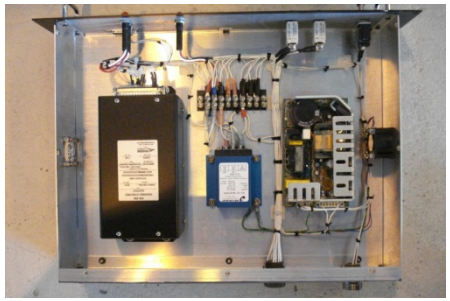




Advantages

- **Government owns data rights and drawings**
- **Decision/recommendations made real time**
- **Enables competition for small business**
- **Minimum reporting**
- **Demonstrated 70% cost and schedule savings**





RDIF Current Metrics

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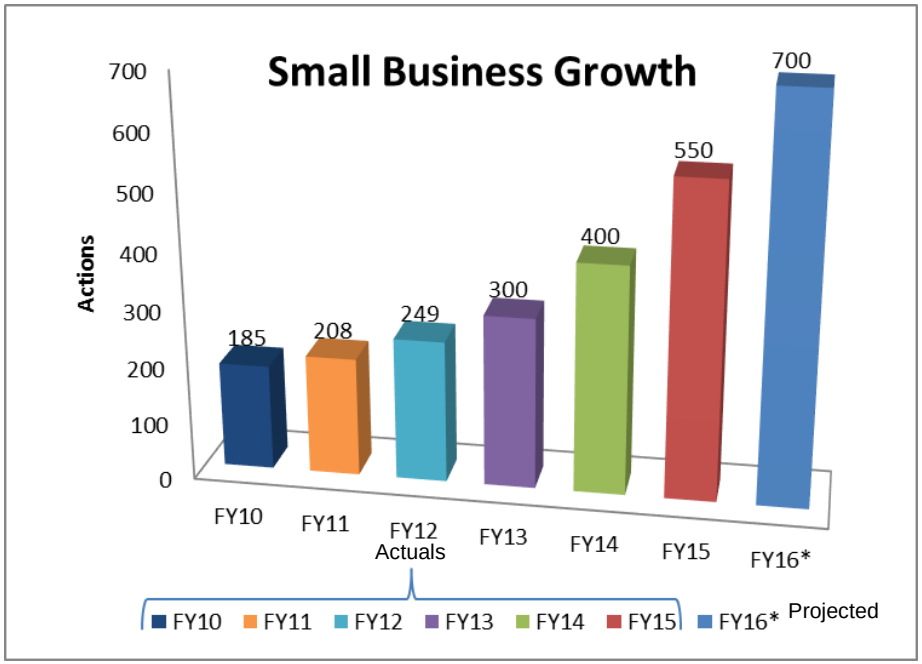
As of: 11 July 2016		
In-work	Complete	Total
42	234	276

Fiscal Year	Revenue	Projects
2010	$7,120,427	32
2011	$1,408,000	28
2012	$6,271,049	42
2013	$10,600,000	69
2014	$2,087,787	29
2015	$4,401,000	36
2016*	$8,963,000	40
RDIF Total To Date*	$40,851,263	276
* = As of 11 July 2016		



- **Business development on plan**
- **Growing "Across AFLCMC" work, assisting with numerous PEO projects**
- **Great partnership with small business**

RDIF Organization

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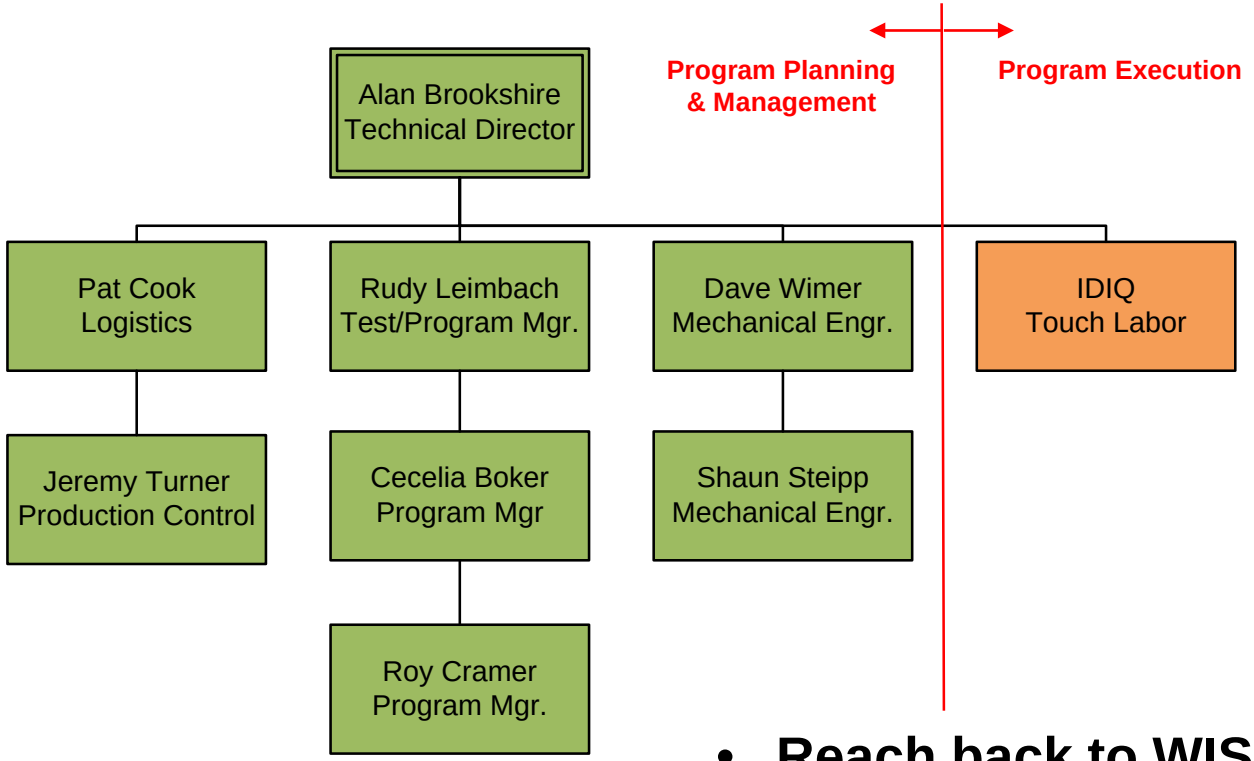
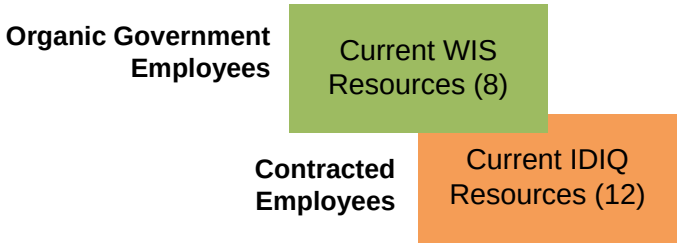
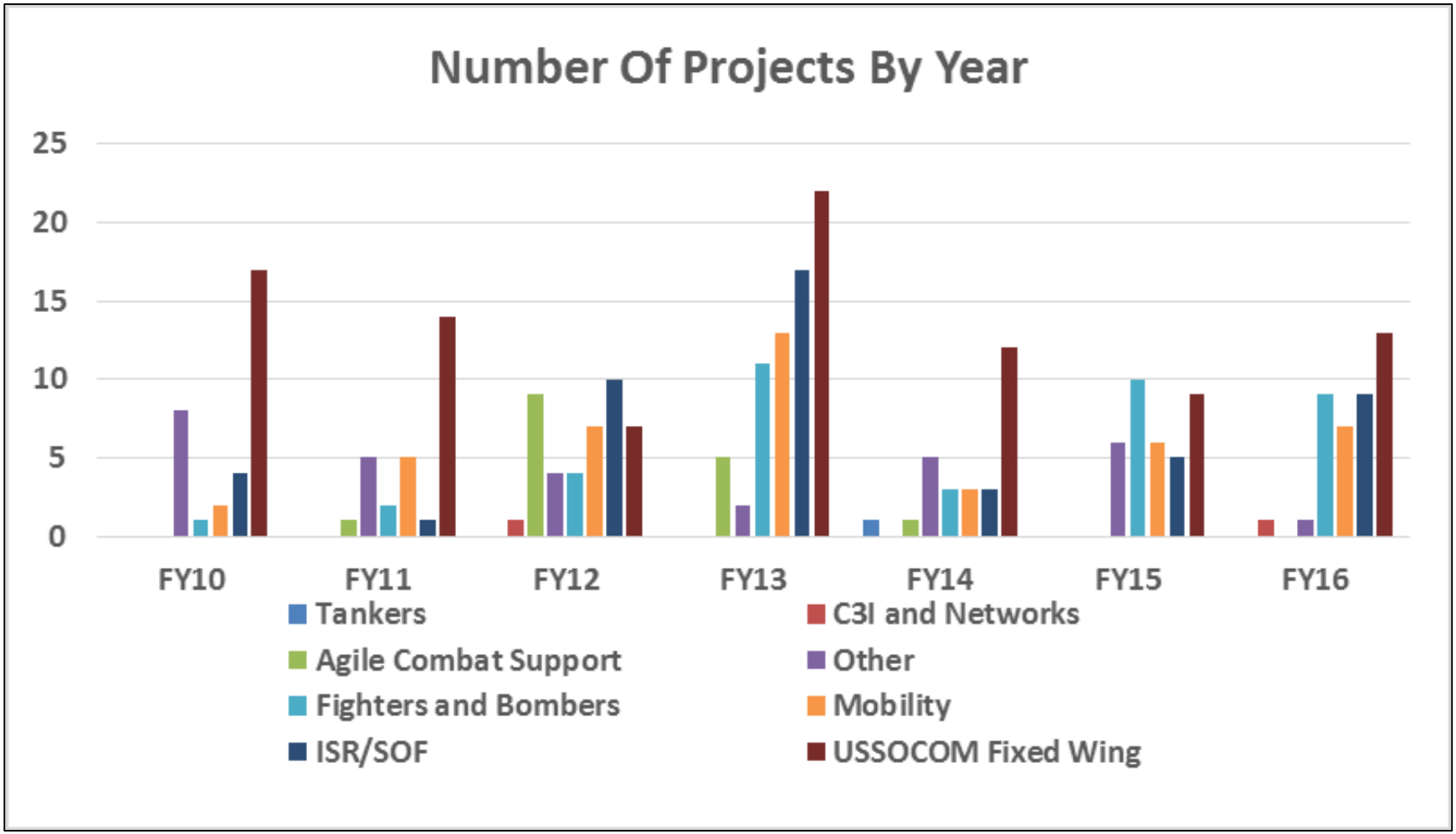




- **Reach back to WIS for financial and contracts support**
- **$48M 5 year (2015-2020) IDIQ contract for labor and material**

Projects By PEO



Example Projects

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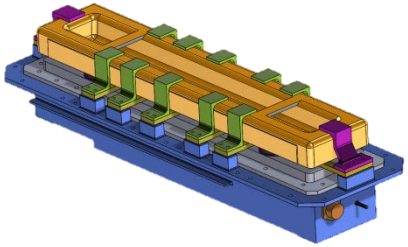
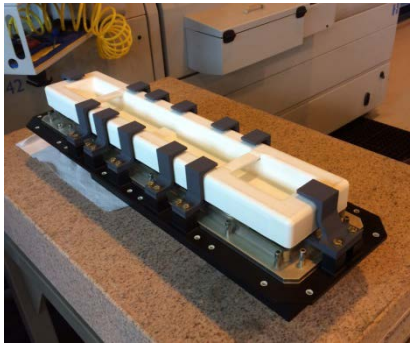
SAR HH-60M modification

HC-130J Mission Networking Modification

F-22 Oxygen Sensor

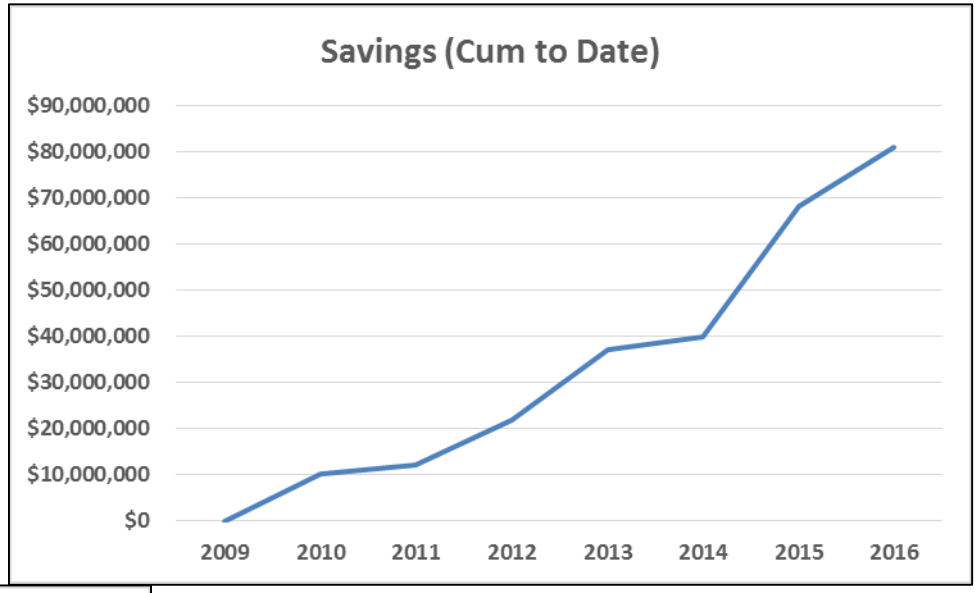


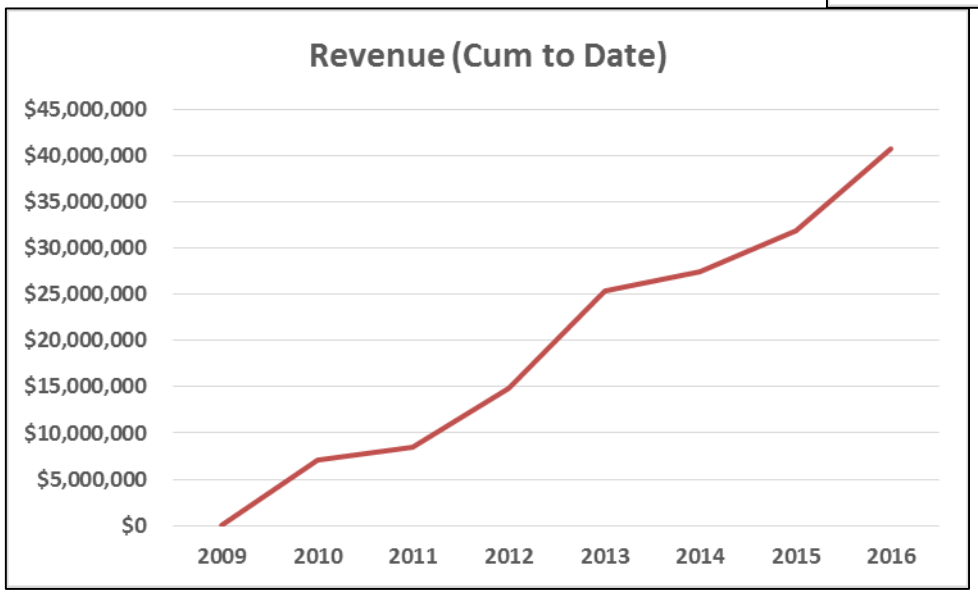


B-2 Low Frequency Receive Antenna Travel Limiter

Trend

- Number of projects increasing every year
- Revenue is up
- Savings continue to rise





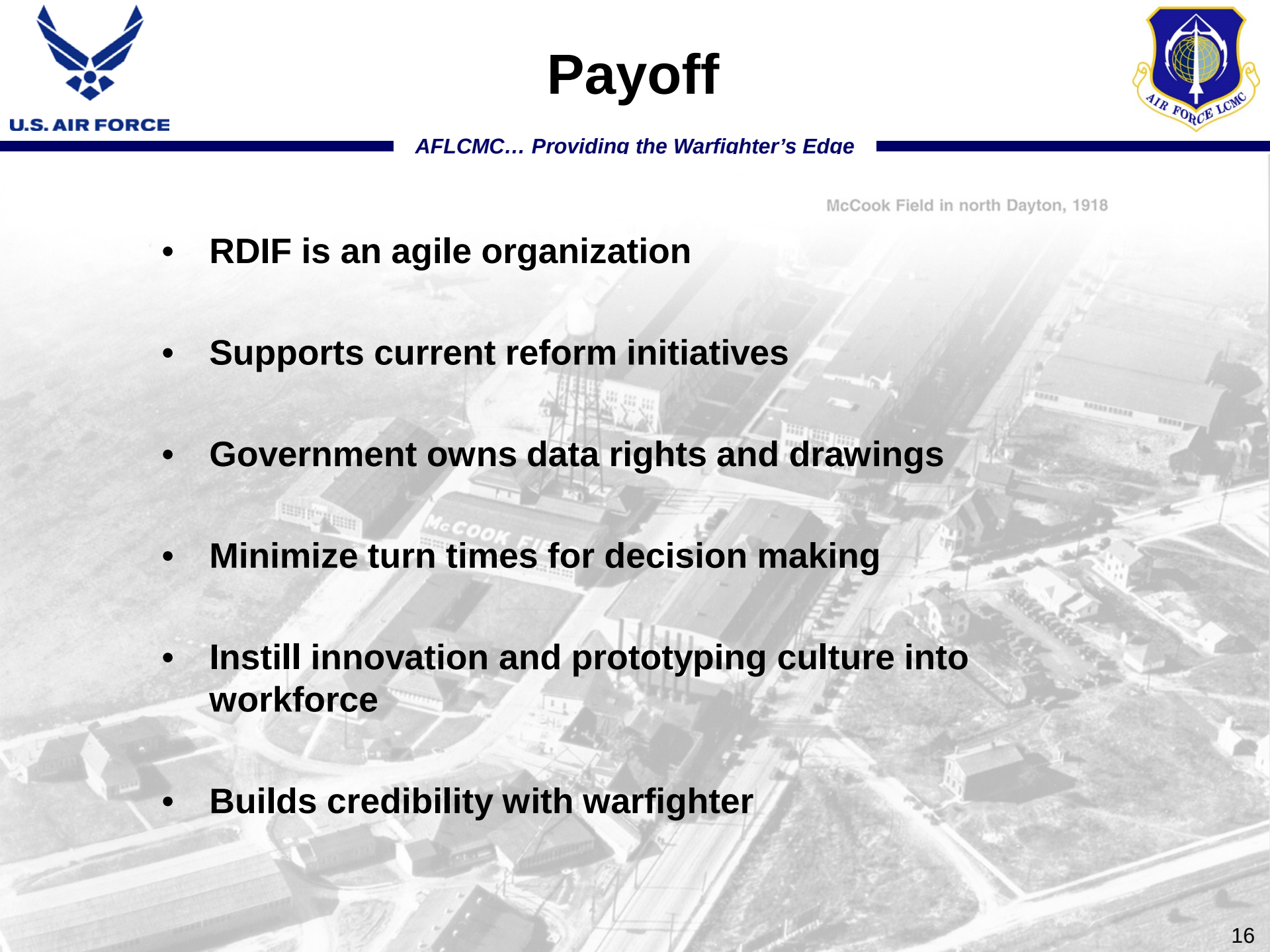
RDIF Success

- **The RDIF model works**
- **Number and complexity of projects increasing every year at a steady pace**
- **Over $81M saved from program offices budgets allowing the program offices to fund additional projects/capabilities/activities on the Warfighter's need list**
- **Started as Special Operations centric operation and has expanded across AFLCMC for all PEOs benefit**

Why The RDIF Is Successful

- **Right people that are focused on the ultimate customer**
- **We enjoy what we do**
- **We take what we do seriously**
- **Project a positive "can do" attitude**
- **"Warrior Spirit", we give back to where we came**
- **We deliver high quality products that develops loyal customers**
- **Use the FAR to say "yes" not "no"**

Payoff



- RDIF is an agile organization
- Supports current reform initiatives
- Government owns data rights and drawings
- Minimize turn times for decision making
- Instill innovation and prototyping culture into workforce
- Builds credibility with warfighter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LIFE CYCLE INDUSTRY DAYS

2016 LCID: Source Selection Hot Topics

Mr. Kraig Neer

Acquisition Center of Excellence

Disclaimers

- **No information in this briefing is meant to supersede or otherwise overrule any competitive acquisition currently being conducted or to be conducted in the future**
- **The ACE will NOT disclose any Source Selection Information, past or present**
- **The presentation has been generated to facilitate understanding of the Source Selection Process, NOT to highlight specific issues on any given source selection**
  - **Request any questions be phrased generally for entire audience**

Agenda

- **Acquisition Center of Excellence (ACE)**
  - **Who we are**
  - **What we do**
- **DoD Source Selection (SS) Procedures**
  - **The SS Process**
  - **Recent Changes**
  - **AFFARS MP5315.3 (Supplemental SS Procedures)**
- **What is VATEP?**
- **Past Performance Evaluation Process**
- **Q&A**

Organizational Hierarchy

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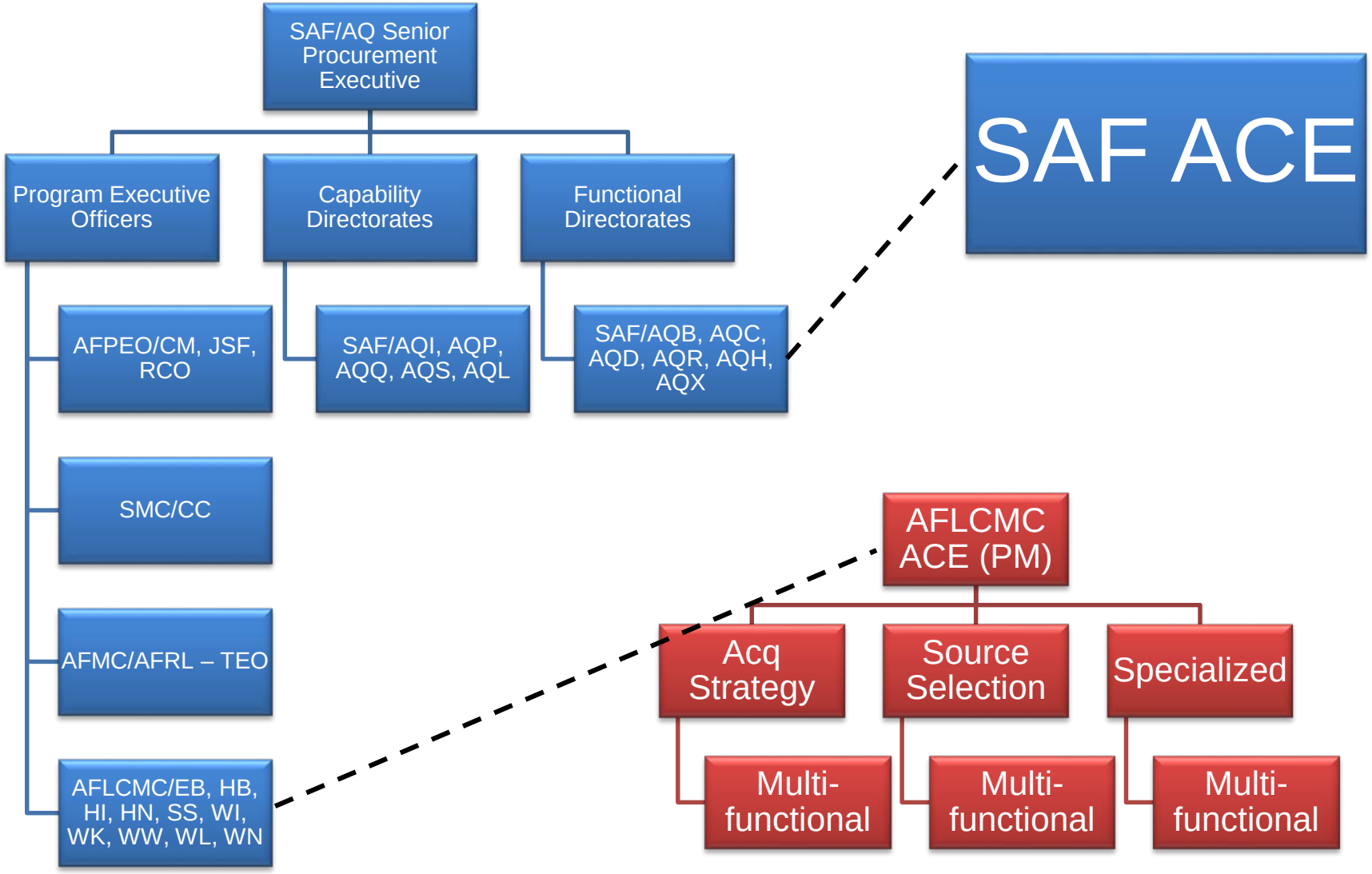

AFLCMC ACE

The ACE mission is to provide expert advice and hands-on assistance to the acquisition workforce and leadership to instill credibility, excellence and innovation in the Air Force Acquisition and Sustainment process.

- **Serves as a Force Multiplier for all AFLCMC Programs**
  - **Trainers, advisors and document reviewers**
- **Acts as Independent Advisor to Leadership**
  - **Program Executive Officer (PEO)**
  - **Source Selection Authority (SSA)**
  - **Clearance Approval Authority (CAA)**
  - **Multi-functional Independent Review Team (MIRT)**

ACE Core Business Areas

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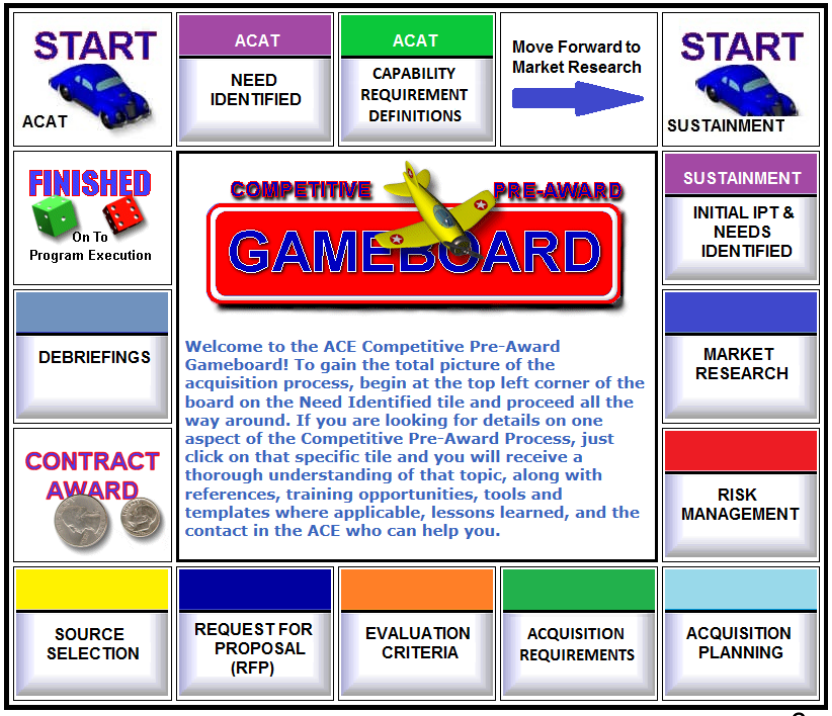
- **Acquisition Strategy Development**
- **Request for Proposals (RFP) Development**
- **Source Selection Support**
- **Sole Source Proposal Technical Evaluation**
- **Milestone Decision Support**
- **Integrated Risk Management**
- **Schedule Management**
- **Source Selection Facilities**



Pre-Award ACE Training/Support Sequencing

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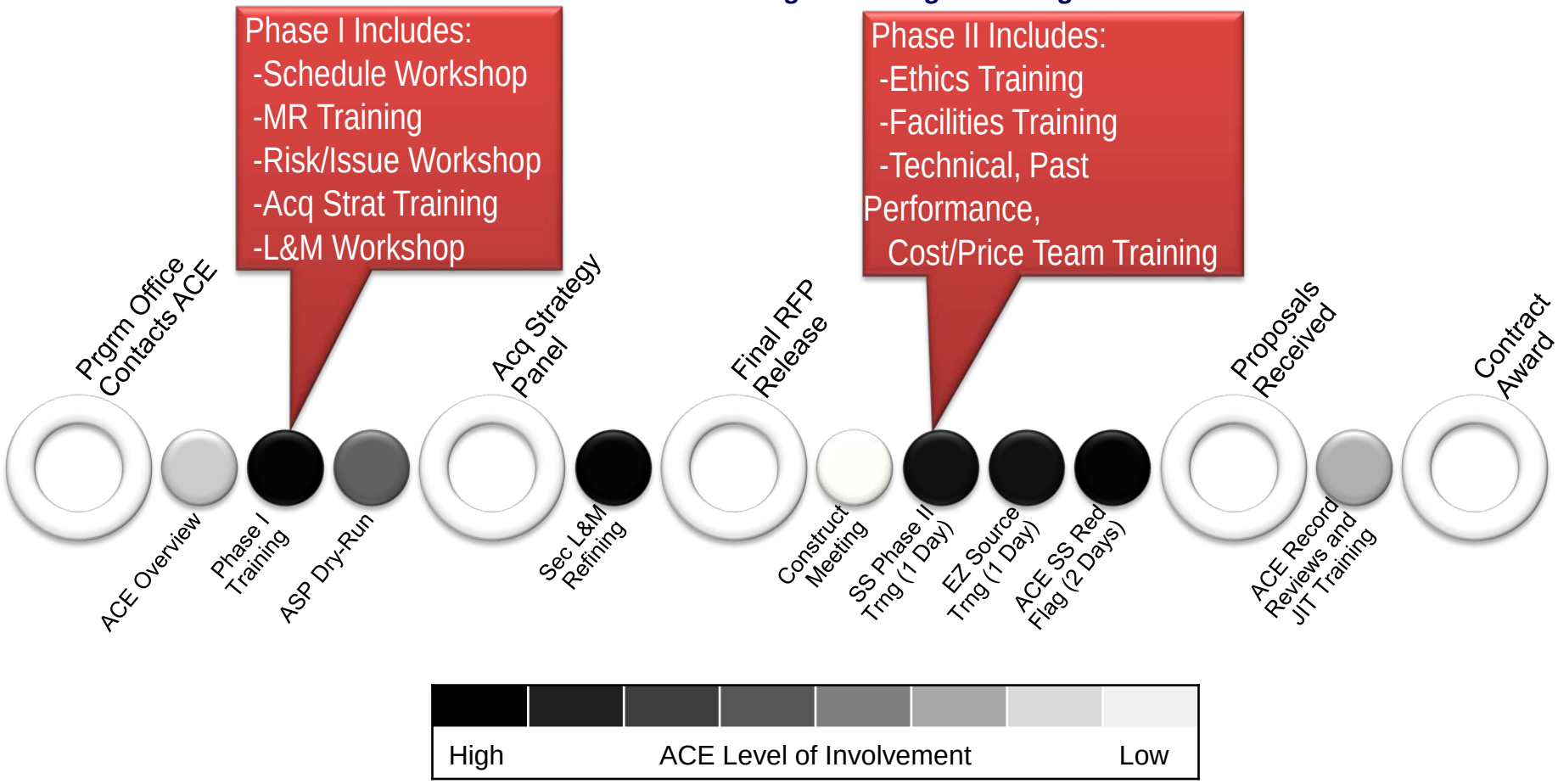

Training/Support is Just-In-Time for Major Acquisition Milestones

Agenda

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AFLCMC Source Selection Standard Process

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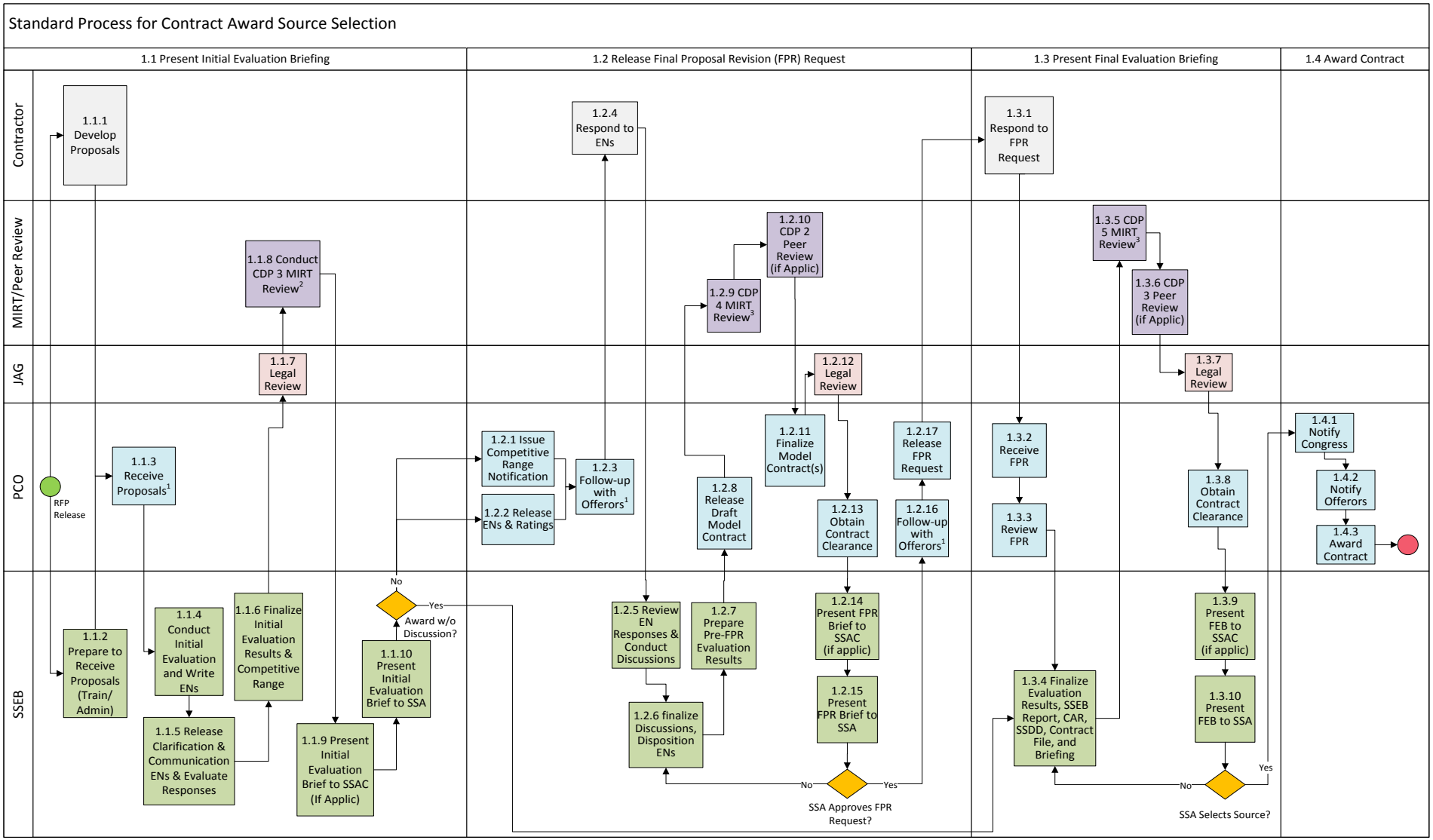

[1] PCO Must Ensure Verbal Exchanges Are Documented in Contract Files

[2] This Event is Incorporated into 1.3.5 if Team Anticipates Awarding Without Discussions

[3] Utilizing existing processes in lieu of CDP 4 and 5 MIRTs (see AFLCMC/PK memo)

Source Selection Timeline

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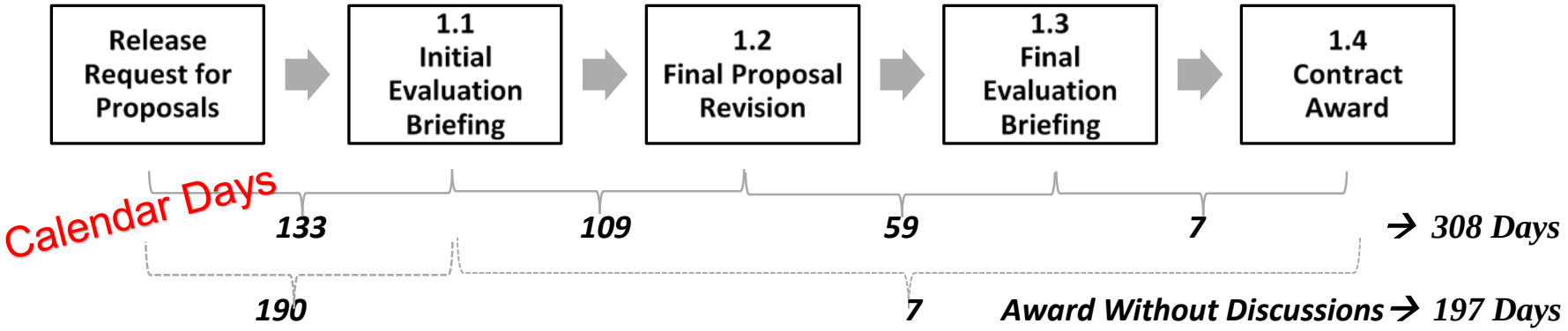
Figure 1. Standard Source Selection Process--Key Decision Events



- September 2014 Rapid Improvement Event
  - Identified level-3 and level-4 Work Breakdown Structure
  - Multi-functional, multi-site team estimated timeline of level-4 tasks
  - Created bottoms-up timeline of events
  - Vertically aligned all parallel tasks
  - Result = 330 days
- May 2016
  - Updated SP timeline to account for no MIRT event during Critical Decision Points #4 and #5

Summary of 2016 DoD SS Procedure Changes

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- **Effective** for acquisitions with source selection plans approved on/after **1 May 16**
- **Expanded** Source Selection Team (SST) **roles and responsibilities**
- PCO encouraged to discuss weaknesses, **excesses**, and price
- Mandatory for all Major Systems acquisitions and FAR 15 competitive acquisitions over $10M
- Revised waiver approval thresholds
- Rating definitions
  - New risk rating and small business ratings
- New SS evaluation methodology introduced – Value Adjusted Total Evaluated Price (VATEP)

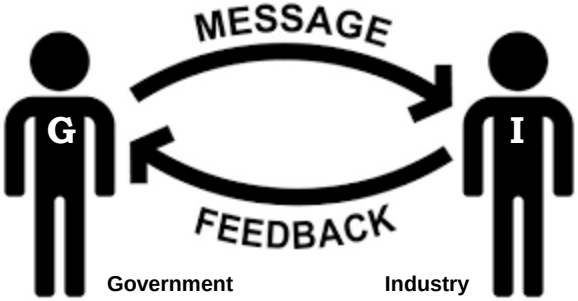
Steps Within the Source Selection Process Have Not Changed

Applicability

- **All acquisitions**
  - **Conducted as part of a Major Systems Acquisition Program**
  - **Competitively negotiated FAR Part 15 over $10M**
    - **AFFARS MP5315.3 - applies to ALL negotiated, competitive acquisitions using FAR Part 15**
- **Agencies shall consider use of the procedures for FAR Subpart 16.5 Fair Opportunity Orders**
- **Exceptions**
  - **FAR Part 12 (when using FAR 13/14), FAR Part 14, FAR Part 8**
- **Waivers**
  - **>$1B – DPAP Director**
  - **<$1B – Senior Procurement Executive (SAF/AQ)**
    - **Delegated to DAS(C) (AFFARS MP5315.3)**

Pre-Solicitation Activities

- **Market Research**
  - Responsibility shared by PM, Requirements Owner, PCO, and others members of acquisition team
  - Pre-Solicitation notices, Industry Days (ID), and Draft RFPs
    - **ID strongly recommended**, including one-on-one meetings when appropriate
    - **Draft RFPs highly recommended**, consider multiple draft RFPs



- **Develop Request for Proposals (RFP)**
  - **Consider hybrid approaches**, applying subjective and objective criteria as appropriate to evaluate elements of proposal
  - May prescribe minimum "go/no go" or "pass/fail" gate as criteria that proposals **must meet before advancing in proposal evaluation process**

LPTA Rating Changes

- **BEFORE:**

Table A-1. Technical Acceptable/Unacceptable Rating Method	
Rating	**Description**
Acceptable	**Proposal clearly meets the minimum requirements of the solicitation.**
Unacceptable	**Proposal does not clearly meet the minimum requirements of the solicitation.**

- **AFTER:**

Table C-1. Technical Acceptable/Unacceptable Rating Method	
Rating	**Description**
Acceptable	**Proposal meets the requirements of the solicitation.**
Unacceptable	**Proposal does not meet the requirements of the solicitation.**

LPTA Rating Changes *(cont'd)*

- **Updated LPTA Past Performance Evaluation Ratings**

Table C-2. Past Performance Evaluation Rating Method	
Rating	**Description**
Acceptable	**Based on the offeror's performance record, the Government has a reasonable expectation that the offeror will successfully perform the required effort, or the offeror's performance record is unknown. (See note)**
Unacceptable	**Based on the offeror's performance record, the Government does not have a reasonable expectation that the offeror will be able to successfully perform the required effort.**

Note: …. Therefore, the offeror shall be determined to have **unknown (or "neutral")** past performance. In the context of acceptability/unacceptability, a **neutral** rating shall be considered "acceptable."

Tradeoff Rating Changes (Method #1 – Separate Ratings)

PREVIOUS RATINGS

Table 2. Technical Ratings

Color	Rating	Description
Blue	Outstanding	Proposal meets requirements and indicates an exceptional approach and understanding of the requirements. The proposal contains multiple strengths and no deficiencies.
Purple	Good	Proposal meets requirements and indicates a thorough approach and understanding of the requirements. Proposal contains at least one strength and no deficiencies.
Green	Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements. Proposal has no strengths or deficiencies.
Yellow	Marginal	Proposal does not clearly meet requirements and has not demonstrated an adequate approach and understanding of the requirements.
Red	Unacceptable	Proposal does not meet requirements and contains one or more deficiencies and is unawardable.

UPDATED RATINGS

Table 2A. Technical Rating Method

Color Rating	Adjectival Rating	Description
Blue	Outstanding	Proposal indicates an exceptional approach and understanding of the requirements and contains multiple strengths.
Purple	Good	Proposal indicates a thorough approach and understanding of the requirements and contains at least one strength.
Green	Acceptable	Proposal indicates an adequate approach and understanding of the requirements.
Yellow	Marginal	Proposal has not demonstrated an adequate approach and understanding of the requirements.
Red	Unacceptable	Proposal does not meet requirements of the solicitation and, thus, contains one or more deficiencies and is unawardable.

Tradeoff Rating Changes *(cont'd)* (Method #1 – Separate Ratings)

PREVIOUS RATINGS

REQUIRED FOR SEPARATE TECHNICAL/RISK EVALUATION

Table 3. Technical Risk Ratings

Rating	Description
Low	Has little potential to cause disruption of schedule, increased cost or degradation of performance. Normal contractor effort and normal Government monitoring will likely be able to overcome any difficulties.
Moderate	Can potentially cause disruption of schedule, increased cost or degradation of performance. Special contractor emphasis and close Government monitoring will likely be able to overcome difficulties.
High	Is likely to cause significant disruption of schedule, increased cost or degradation of performance. Is unlikely to overcome any difficulties, even with special contractor emphasis and close Government monitoring.

UPDATED RATINGS

REQUIRED FOR SEPARATE OR COMBINED TECHNICAL/RISK FACTORS.

Table 2B. Technical Risk Rating Methods

Adjectival Rating	Description
Low	Proposal may contain weakness(es) which have little potential to cause disruption of schedule, increased cost or degradation of performance. Normal contractor effort and normal Government monitoring will likely be able to overcome any difficulties.
Moderate	Proposal contains a significant weakness or combination of weaknesses which may potentially cause disruption of schedule, increased cost or degradation of performance. Special contractor emphasis and close Government monitoring will likely be able to overcome difficulties.
High	Proposal contains a significant weakness or combination of weaknesses which is likely to cause significant disruption of schedule, increased cost or degradation of performance. Is unlikely to overcome any difficulties, even with special contractor emphasis and close Government monitoring.
Unacceptable	Proposal contains a material failure or a combination of significant weaknesses that increases the risk of unsuccessful performance to an unacceptable level.

Tradeoff Rating Changes *(cont'd)* (Method #2 – Combined)

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PREVIOUS RATINGS

Table 1. Combined Technical/Risk Ratings

Color	Rating	Description
Blue	Outstanding	Proposal meets requirements and indicates an exceptional approach and understanding of the requirements. Strengths far outweigh any weaknesses. Risk of unsuccessful performance is very low.
Purple	Good	Proposal meets requirements and indicates a thorough approach and understanding of the requirements. Proposal contains strengths which outweigh any weaknesses. Risk of unsuccessful performance is low.
Green	Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements. Strengths and weaknesses are offsetting or will have little or no impact on contract performance. Risk of unsuccessful performance is no worse than moderate.
Yellow	Marginal	Proposal does not clearly meet requirements and has not demonstrated an adequate approach and understanding of the requirements. The proposal has one or more weaknesses which are not offset by strengths. Risk of unsuccessful performance is high.
Red	Unacceptable	Proposal does not meet requirements and contains one or more deficiencies. Proposal is unawardable.

UPDATED RATINGS

Table 3. Combined Technical/Risk Rating Method

Color Rating	Adjectival Rating	Description
Blue	Outstanding	Proposal indicates an exceptional approach and understanding of the requirements and contains multiple strengths, and risk of unsuccessful performance is low.
Purple	Good	Proposal indicates a thorough approach and understanding of the requirements and contains at least one strength, and risk of unsuccessful performance is low to moderate.
Green	Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements, and risk of unsuccessful performance is no worse than moderate.
Yellow	Marginal	Proposal has not demonstrated an adequate approach and understanding of the requirements, and/or risk of unsuccessful performance is high.
Red	Unacceptable	Proposal does not meet requirements of the solicitation, and thus, contains one or more deficiencies, and/or risk of unsuccessful performance is unacceptable. Proposal is unawardable.

Tradeoff Rating Changes *(cont'd)*

Table 5. Performance Confidence Assessments Rating Method	
Rating	**Description**
Substantial Confidence	**Based on the offeror's recent/relevant performance record, the Government has a high expectation that the offeror will successfully perform the required effort.**
Satisfactory Confidence	**Based on the offeror's recent/relevant performance record, the Government has a reasonable expectation that the offeror will successfully perform the required effort.**
Neutral Confidence	**No recent/relevant performance record is available or the offeror's performance record is so sparse that no meaningful confidence assessment rating can be reasonably assigned. The offeror may not be evaluated favorably or unfavorably on the factor of past performance.**
Limited Confidence	**Based on the offeror's recent/relevant performance record, the Government has a low expectation that the offeror will successfully perform the required effort.**
No Confidence	**Based on the offeror's recent/relevant performance record, the Government has no expectation that the offeror will be able to successfully perform the required effort.**

Tradeoff Rating Changes *(cont'd)*

Table 6. Small Business Rating Method		
Color	**Rating**	**Description**
Blue	**Outstanding**	**Proposal indicates an exceptional approach and understanding of the small business objectives.**
Purple	**Good**	**Proposal indicates a thorough approach and understanding of the small business objectives.**
Green	**Acceptable**	**Proposal indicates an adequate approach and understanding of the small business objectives.**
Yellow	**Marginal**	**Proposal has not demonstrated an adequate approach and understanding of the small business objectives.**
Red	**Unacceptable**	**Proposal does not meet small business objectives.**

*Arrows Identify Ratings to be Used in ACCEPTABLE / UNACCEPTABLE Evaluation

Agenda

- **Acquisition Center of Excellence (ACE)**
  - **Who we are**
  - **What we do**
- **DoD Source Selection (SS) Procedures**
  - **The SS Process**
  - **Recent Changes**
  - **AFFARS MP5315.3 (Supplemental SS Procedures)**
- **What is VATEP?**
- **Past Performance Evaluation Process**
- **Q&A**

Value Adjusted Total Evaluated Price (VATEP) Defined

- **Type of Tradeoff Methodology**
- **Monetizes Trade Space**
  - **Designed to monetize different levels of performance corresponding to minimum (T) or maximum (O) performance/capabilities**
  - **Does not have to monetize all the trade space**
  - **If all trade space is monetized, evaluation will look and feel like LPTA, but it is NOT**
- **Tradeable Non-Monetized Requirements (Non-VATEP Factors)**
  - **RFP must state that such factors will be evaluated based on the relative importance to other factors as established in the RFP**
  - **FAR 15.304(e): "significantly more…approximately equal…or significantly less than cost or price"**

When To Use VATEP?

"VATEP may be appropriate when the RO wishes to optimally balance price and performance/capability above threshold (minimum) requirements to maximize the achievement of program objectives." (DoD SS Procedures)

- **When the Agency has True Discriminators**
- **When the Agency clearly Understands the Relative Importance and Prioritization of Requirements**
- **When Operational Benefits of Above-Minimum Capability are known and measureable**
- **When Technology is Currently Available**
- **When Technology is Affordable**

Monetizing the Trade Space

- **Only monetize capabilities that are available, measurable, and affordable**
- **Must be developed by or with operational user**
- **Based on market research**
  - **Explain the operational benefits of an above-minimum capability**
  - **Determine the cost/price impact of those benefits**
    - **Fuel savings, greater reliability/availability, more missions types, lighter weight, smaller size, etc**
    - **Big Question: How do you calculate the cost/price impact?**
      - **Life-cycle savings, contract PoP savings, more portable, wider application, etc?**
- **RFP will identify percentage or dollar amount assigned to valued requirements**

Agenda

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Past Performance Evaluation Team (PPET) Process

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Recency

Gate Criterion
Stipulated in RFP
Typically 3-5 yrs

Relevancy

How similar is the submitted effort to this acquisition?
Scope,
Magnitude, and
Complexity

Quality

How well has the offeror performed in the past?
CPARs,
PPQs, and
Interviews

The degree of <u>confidence</u> the Government has in an offeror's ability to supply products and services, based on demonstrated performance

Results in…

PPET Worksheets:

Decision Briefing and Feedback:

	Program Title	Contractor	Operational Utility		SE/PM		Product Support	
			REL	QUAL	REL	QUAL	REL	QUAL
1	Contract #FX8637-13-C-0024 F-46 Aircraft	Wings	R	VG	VR	M	SR	S
2	Contract #001-12-C-118, T-6 Trainer Aircraft	Wings	R	S	VR	E	NR	NR
3	Contract #001-14-003 KC-10 Refurbishment	Wings	R	VG	R	S	NR	NR
4	Contract #001-13-004, KC-45 Refurbishment	Wings	VR	E	R	S	SR	S
5	Contract #001-14-004, F/A 18 Avionics Upgrade	Wings	VR	E	R	S	NR	NR
6	Contract #001-14-004, C-17 CLS	Tails	NR	NR	NR	NR	R	VG
7	Contract #001-11-004, KC-45 CLS	Tails	NR	NR	NR	NR	R	E

High Expectation of SF Performance | Reasonable Expectation of SF Performance | Reasonable Expectation of SF Performance

Factor Rating – SATISFACTORY CONFIDENCE

PPET Process Differences

- **Performance Quality – Rating Vs. No Rating**
  - **Rating may be utilized to aid in arriving at a Confidence level**
  - **Where no rating is used, a narrative summary would be provided**
- **Evaluation of Subcontractor Performance Data**
  - **Traditionally done if "major sub" or "critical sub"**
  - **Data may be an issue if sub has not been a prime contractor**
  - **Challenge to status quo**
    - **Since prime must manage sub, why evaluate sub?**
- **Specificity of Relevancy Criteria**
  - **Next slide**

Past Performance Relevancy Specificity

	Subfactor 1 Operational Utility	Subfactor 2 Product Support	Subfactor 3 SE/Mgmt.	Cost/Price
VR	Design and development of Air Force fighter/attack aircraft	Sustainment of Air Force Fighter/attack aircraft	Application of Systems Engineering, test and Program Management of an Air Force aircraft weapons system	>$2B Aircraft SD&D effort Cost plus contract
R	Design and development of other DoD aircraft systems	Sustainment of other DoD aircraft systems	Systems Engineering, test and Program Management of other DoD aircraft weapons system	>$500M Aircraft SD&D effort Cost plus contract
SR	Design and development of other weapons systems or major subsystems	Sustainment of other weapons systems or subsystems	Systems Engineering, test and Program Management of other weapons systems or subsystems	>$50M Weapons System or subsystem SD&D effort Cost plus contract
NR	No weapons systems development	No weapons systems support evident	No systems engineering or program management of weapons systems or subsystems	No SD&D effort >$50M Fixed price contract

Generic

- Scope
- Magnitude
- Complexity

Subfactors

- Using the Technical Subfactors to Further Specify What is Relevant

Relevancy Matrix

- May Be Issued with RFP
- May Be Used Internally to Support Evaluation

Requirements

- Identifying Specific requirements
- Referencing whole requirements documents
- Explicitly written in Section M

AFLCMC Typically Operates Here

Summary

- **ACE Provides Pre-Award Support to AFLCMC Teams**
- **DoD Source Selection Procedures Updated – Apr 2016**
- **VATEP**
- **Past Performance Evaluation**

Back Up

The Best-Value Continuum

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Greater — Relative Importance of Cost or Price — Lesser

Lesser — Importance of Non-Cost Factors — Greater

FAR Part 15.101, FAR Subpart 15.3, as supplemented

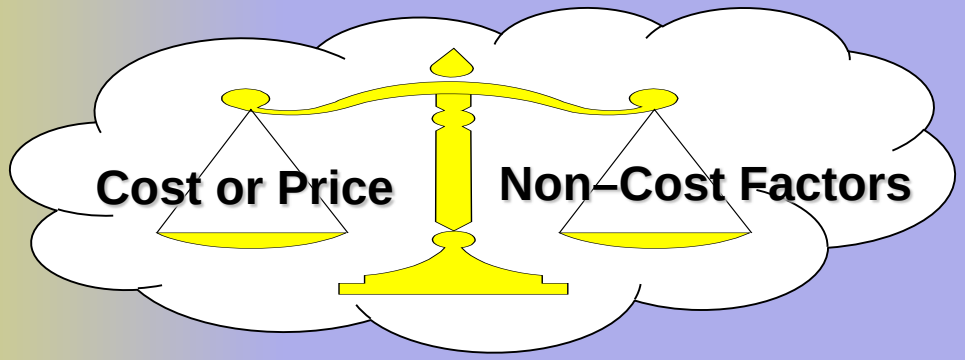
Lowest Price Technically Acceptable (LPTA) Process

Tradeoff Process

Value Adjusted (VATEP) or Subjective

Potential tradeoffs of:

- *Technical Compliance*
- *Technical Risk*
- *Past Performance*
- *SB Participation*
- *Cost or Price*

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AFMC FMS Enterprise Way Ahead

Brig Gen Gregory M. Gutterman

AFSAC Director

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Global Environment

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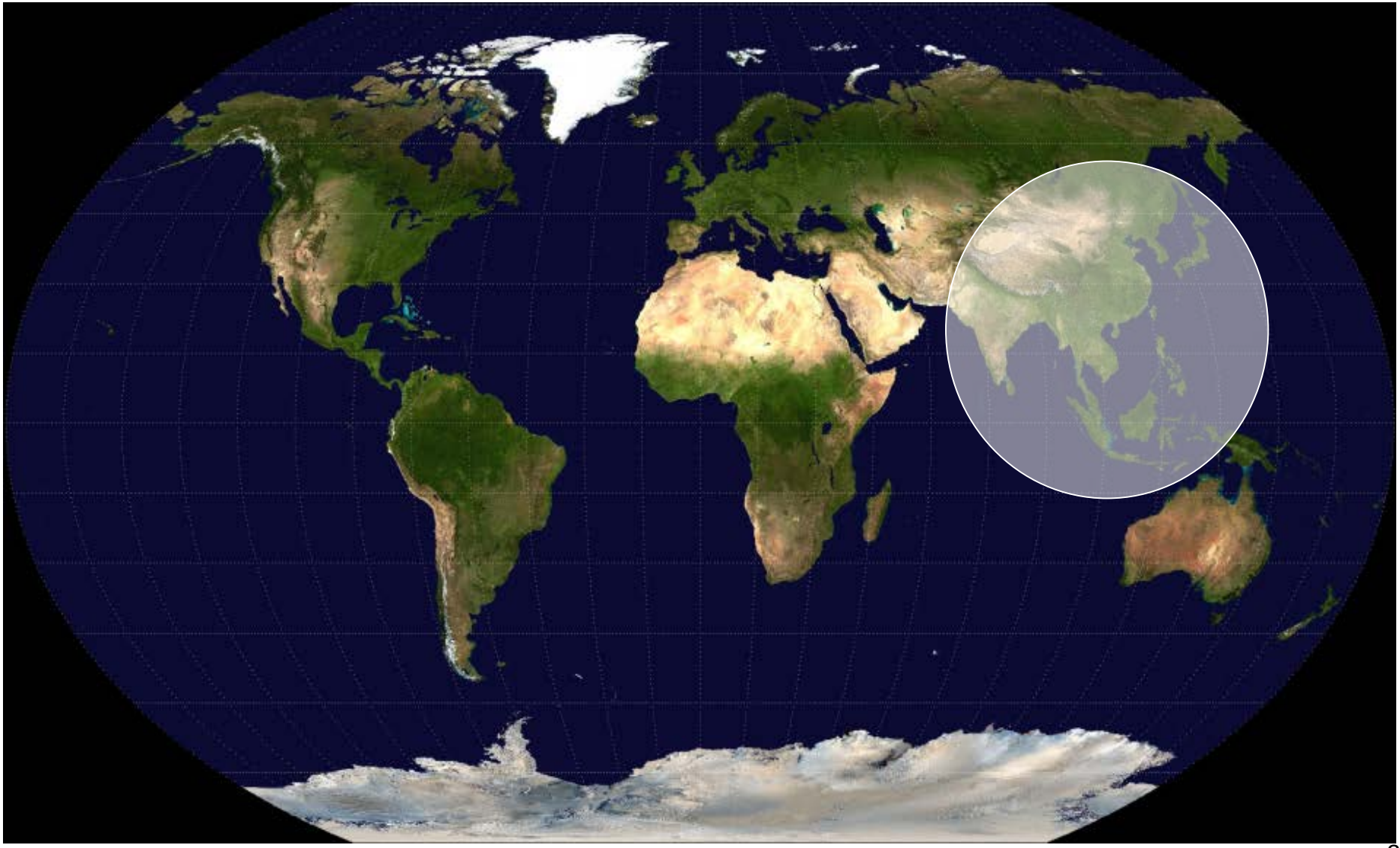

Global Trends

- **ISR Demand Up**
- **Aircraft & Support Equipment Aging**
- **Munitions Orders Up**

AFSAC Delivers Airpower Capabilities to Strengthen International Partnerships and Advance National Security

FMS Enterprise Sales (Less Saudi and JSF)

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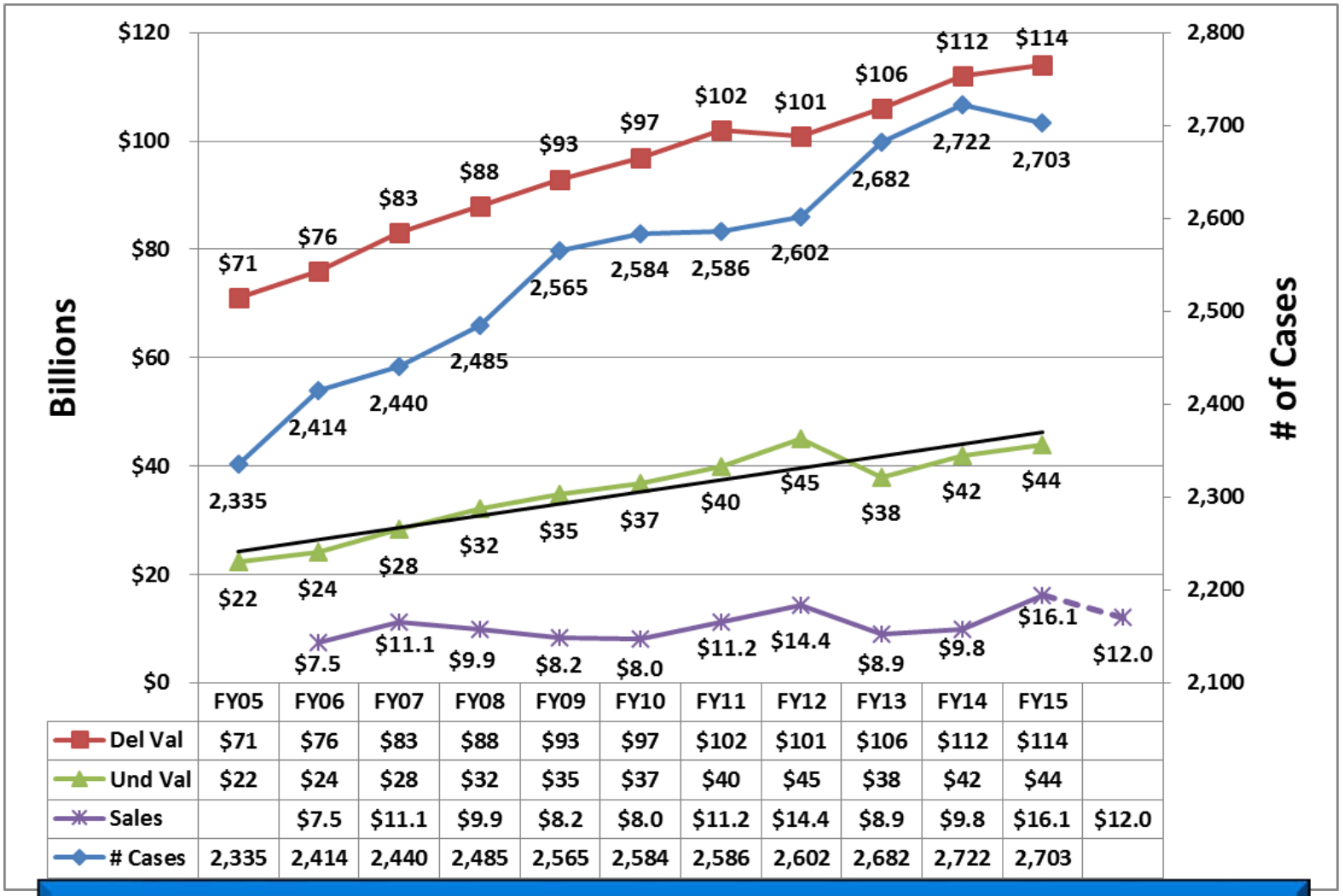

	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	
Del Val	$71	$76	$83	$88	$93	$97	$102	$101	$106	$112	$114	
Und Val	$22	$24	$28	$32	$35	$37	$40	$45	$38	$42	$44	
Sales		$7.5	$11.1	$9.9	$8.2	$8.0	$11.2	$14.4	$8.9	$9.8	$16.1	$12.0
# Cases	2,335	2,414	2,440	2,485	2,565	2,584	2,586	2,602	2,682	2,722	2,703	

FY15 sales up 95% (FY14 $9.8B; FY15 $19.1B)
FMS workload increasing ~ 7% per year

Air Force TOA
Are we at the bottom?

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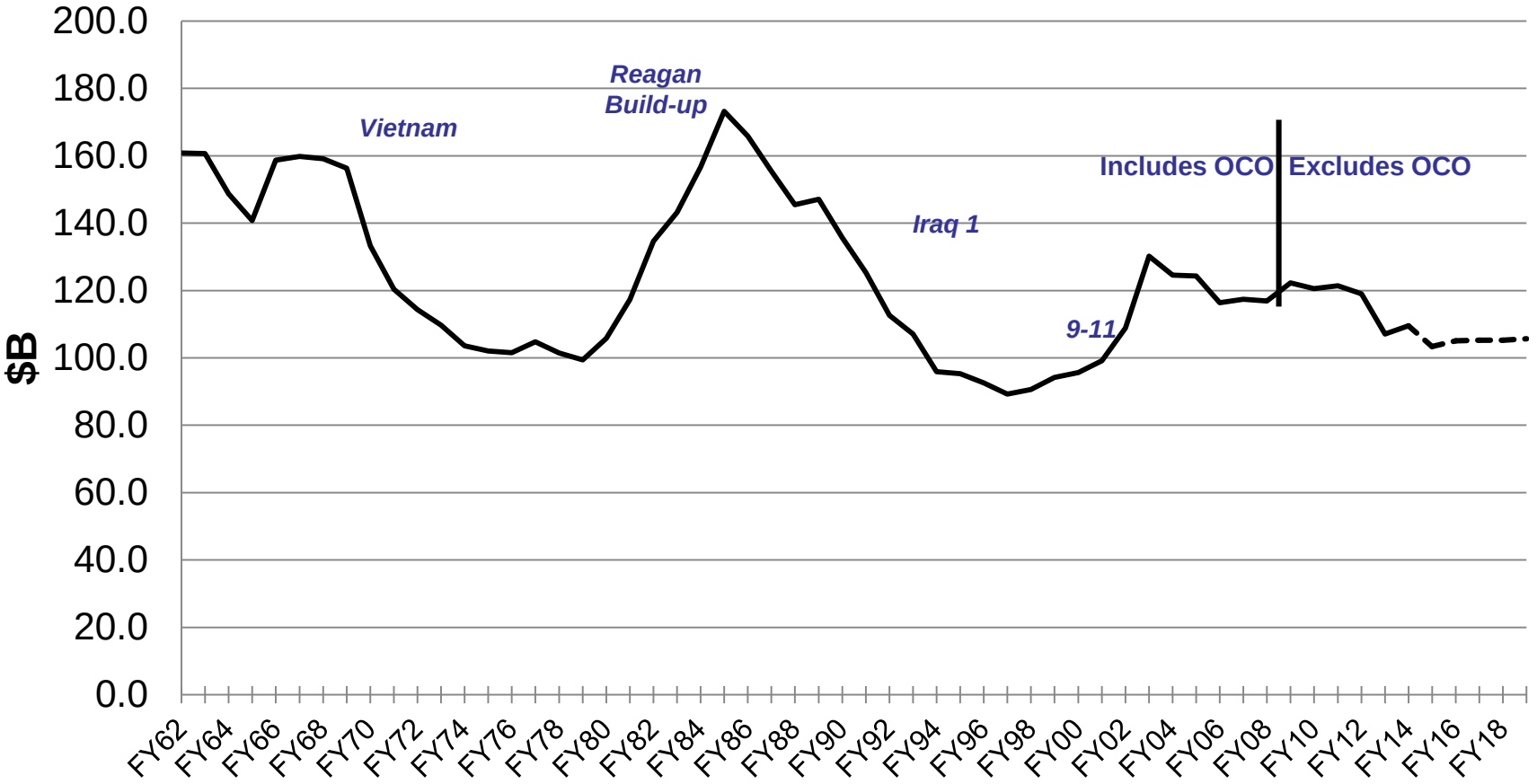
Air Force Blue TOA Constant Year 2012



Source: ABIDES Real Growth Data file 62-14, FY16 POM Rnd 3 FY15-FY20

Security Cooperation Enterprise

Air Force Security Assistance and Cooperation Directorate

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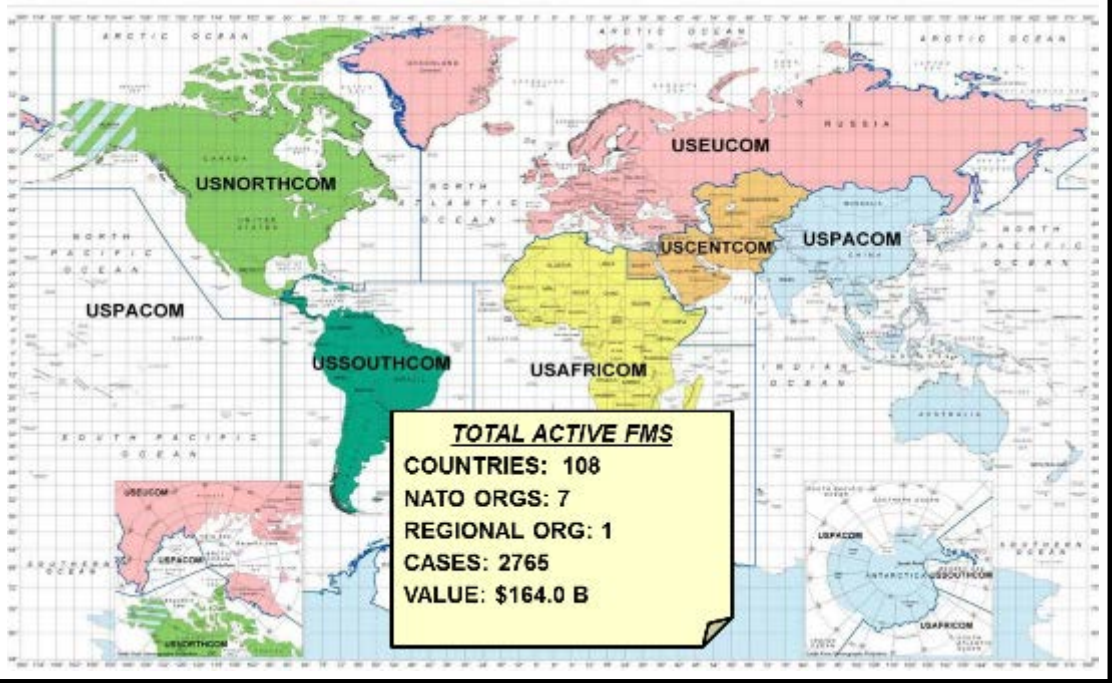
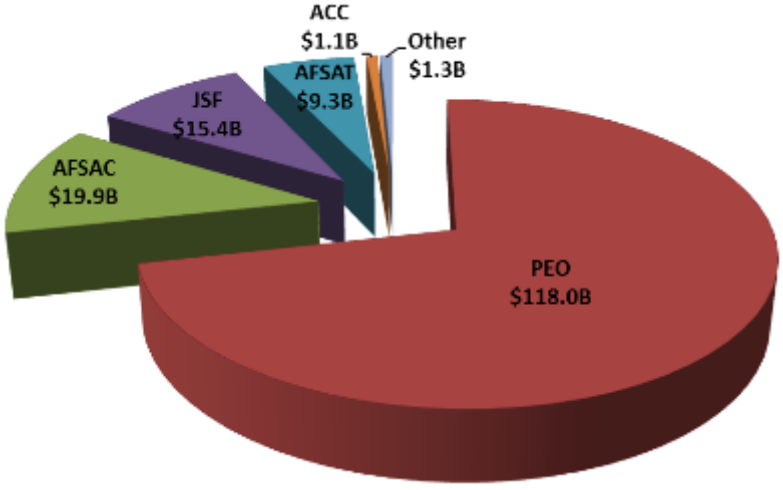


FMS Enterprise Stakeholders

DOD	Inter-Governmental
DSCA	Department of State
SAF/IA	US Embassy Staff
COCOMs	Security Cooperation Offices
PEOs	US Military Training Missions
AETC/IA (AFSAT)	Offices of Defense Cooperation
MAJCOM/IAs	NATO, NATO Agencies
AFSAC	

AFSAC Performs AFMC/IA Role in Financial, Policy, Foreign Disclosure, Arms Export Control Reporting, and Training



AFSAC Core Competencies

- Requirements Pre-Case
- Sales/Case Development
- Case Execution
- Case Closure
- Logistics
- Enterprise Support
- Resources

640 personnel executing >100 FMS case actions per month

AFSAC Sales Fuel and Sustain FMS Enterprise Execution

LIFE CYCLE INDUSTRY DAYS

New Visibility on FMS Process

The SECAF/CSAF Mandate

SECAF Mandate to Improve FMS Process

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US Air Force Secretary Directs Initiative to Speed Up Foreign Military Sales

By Lara Seligman 6:27 p.m. EST December 2, 2015

(Photo: Getty Images)

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WASHINGTON — In response to complaints from partner nations about the challenges of buying US military equipment, Air Force Secretary Deborah Lee James has directed an effort within the service to speed up the clunky foreign military sales process.

During a trip last month to the Middle East, James noticed a trend: partner nations desperately want Pentagon products, but are repeatedly deterred by the arduous approval process for sales of US military equipment.

"The bottom line, having talked to all these individuals, is I believe the United States is the partner of choice for all of them," James said Dec. 2 at an event at the National Press Club. "But I also heard repeatedly about the challenges they feel they face in working with us to get that total package" of US equipment as well as training and maintenance services.

VADM Joseph Rixey
DSCA Director

- **Requirements Stability**
- **Contracting**
- **Workforce Professionalism**

Testimony to the Subcommittee on Oversight and Investigations Of the House Armed Services Committee, 17 May 16

VADM Rixey: "The FMS System is burdened, but not broken."

SECAF/CSAF Directed

- **SAF/IA establish Service-specific oversight to select and train Security Cooperation Officers**
- **AFLCMC work with DAU and DSCA/ISCS to create FMS Process Training Program for Partners, PEOs, Industry**
- **Semiannual Executive Review with SAF/IA, SAF/AQ, and AFLCMC/CC**
  - **Report Complex cases exceeding LOR-to-LOA DSCA thresholds**
  - **Report UCAs not definitized within 180 days of qualifying proposal**
- **10% reduction from LOR Receipt to LOA Offer on all Complex Cases**

Security Cooperation Officers

- **SAF/IA will establish a Service-specific oversight program to select and educate Security Cooperation Officers (SCOs) to better prepare them for FMS planning responsibilities.**

- **SAF/IA will over hire in FY17/18 to bridge to the FY19 POM, and then pursue permanent positions and the associated funding for training future SCOs.**

FMS Process

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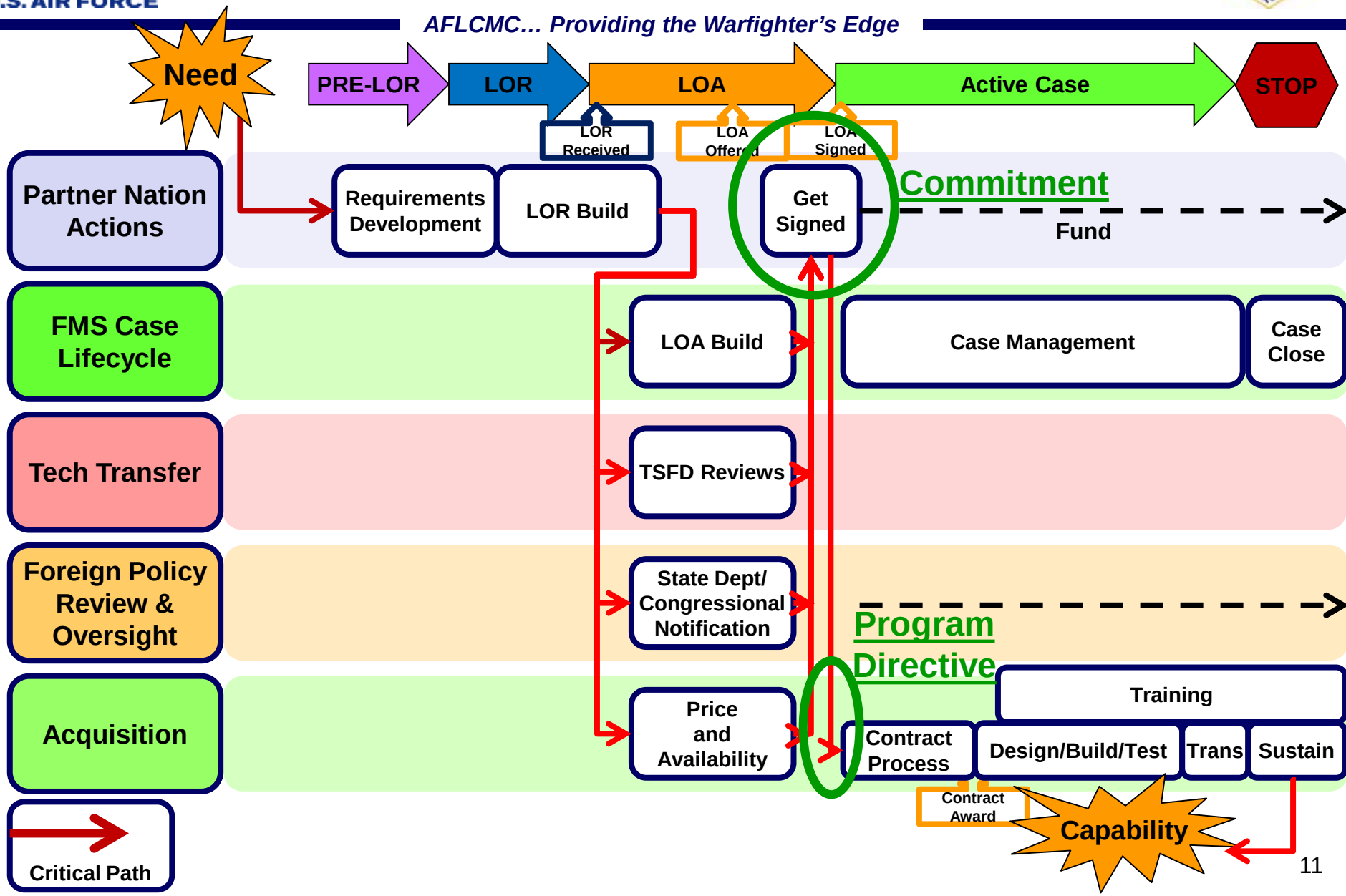

FMS Enterprise

Top-Level Case Development & Logistics Metrics

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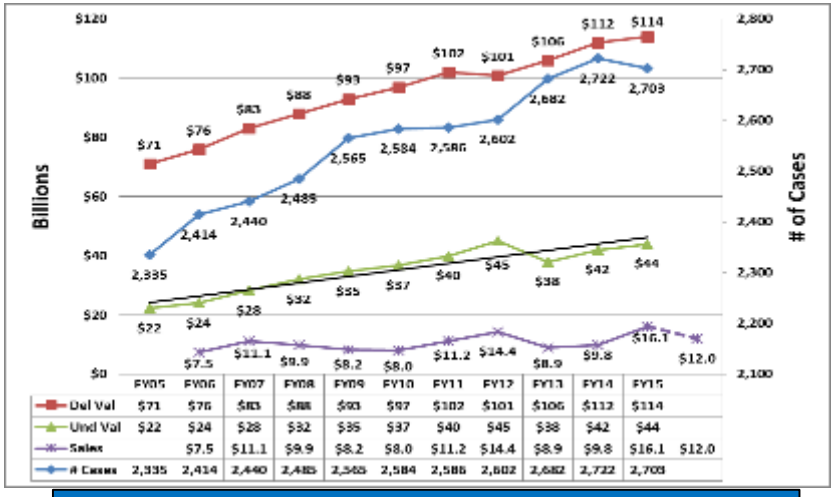
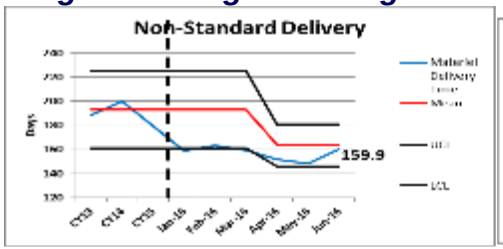
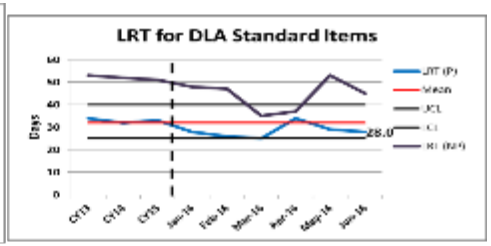
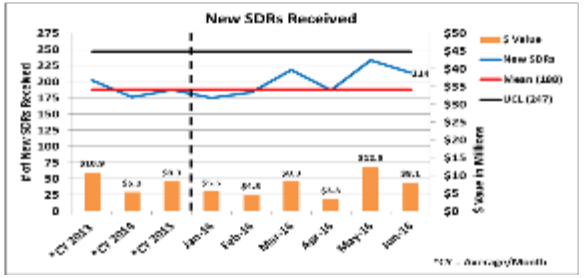


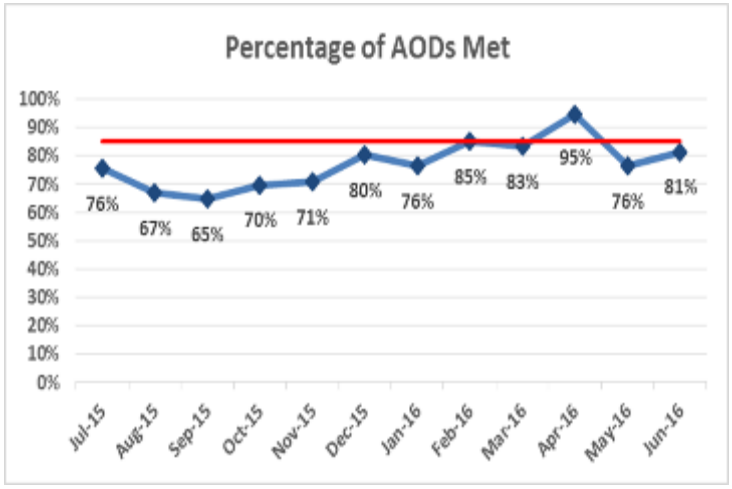
FY15 sales up 95% (FY14 $9.8B; FY15 $19.1B)
FMS workload increasing ~ 7% per year



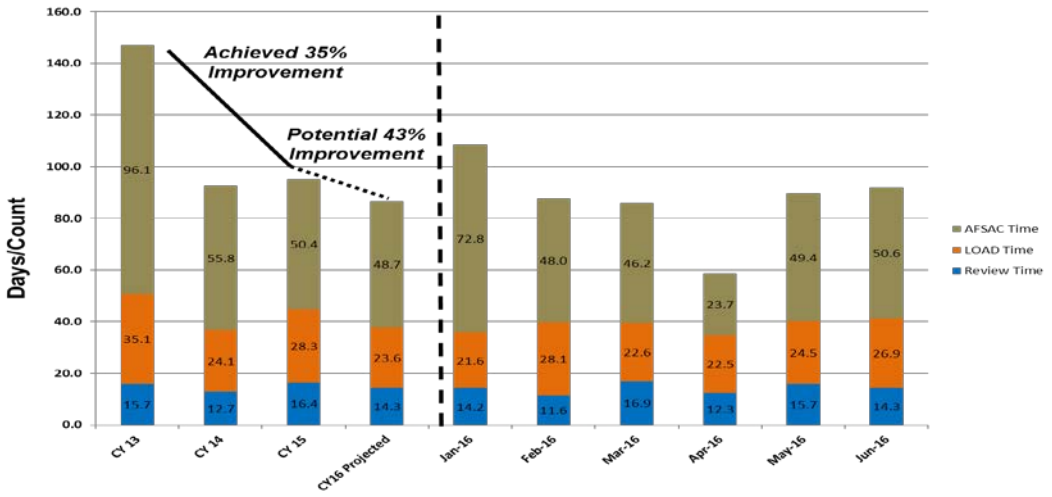




Response time and quality continue to trend better



We are getting better—meeting our commitment to customers in FY16 80% of time, but on an upward trend



Case Development faster—35% reduction in LOA processing times

Contracting Process

UCAs "Speed Up" FMS Capability Delivery

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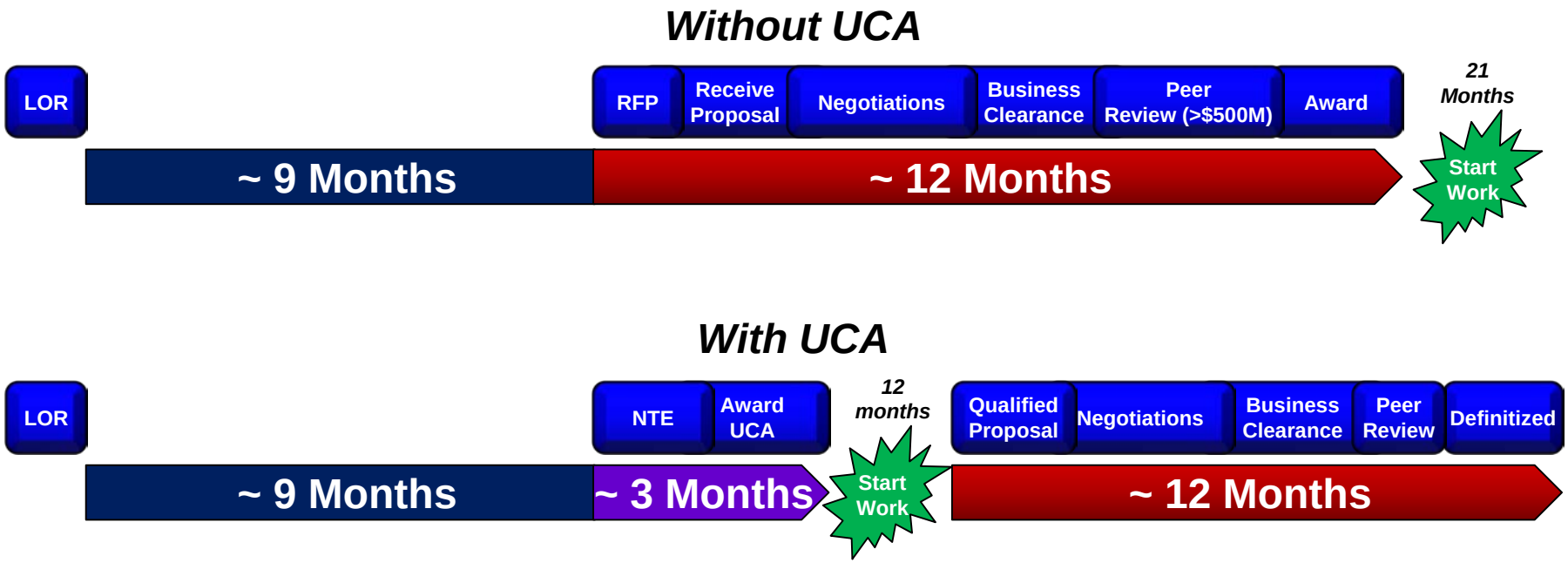

UCAs Enable Capability Delivery to Partners ~ 10 mos Faster

UCA Definitization USAF vs FMS

Timeline Assessment

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FY 14-16	Qty	Initial Proposal Received	Adequate Proposal Received	Tech Eval	Rate/Audit	Business Clearance	Negotiations	Contract Clearance	Total Contract Award
$50 - $500M									
UCA - USAF	19	139	250	114	121	24	72	55	650
UCA - FMS	24	202	313	202	164	31	187	51	714
GOALS		130		100		30	75	30	365

Notes:

- Average # days by milestone events
- Some events are **concurrent** so total contract award is not a sum of all events
- Adequate Proposal Received indicates additional days to receive an adequate proposal
- FY16 NDAA change to indirect offsets, results not reflected in data

UCA Definitization Challenge not Isolated to FMS

UCA Definitization

Top-Level Analysis

60 FMS UCAs (91 Total AF UCAs)
-- 40 Overaged (>180 days)

Oldest 10 FMS UCAs	Days
FMS Program 1	1539
FMS Program 2	1469
FMS Program 3	1371
FMS Program 4	1371
FMS Program 5	1357
FMS Program 6	1277
FMS Program 7	1157
FMS Program 8	1154
FMS Program 9	1136
FMS Program 10	1053
Average Age (of all FMS UCAs)	557

As of 30 Jun 16

Potential Reasons for Delay

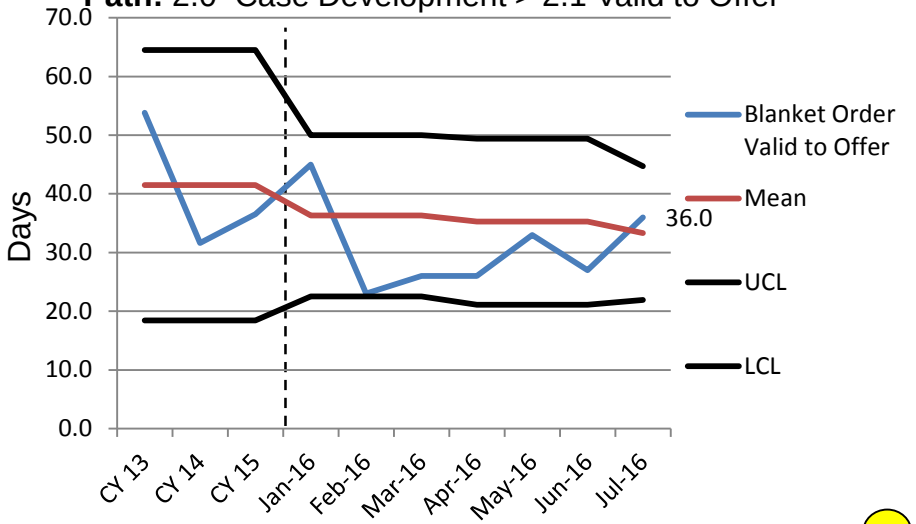
- Changing Regulatory Requirements
- Political & Economic
- Large/Complex Requirements and/or Requirements Instability
- Personnel Challenges (Hiring Process/Learning Curve)
- Lack of meaningful discussions prior to RFP release
- No common prioritization schema across all stakeholders
- Subcontract CARS/PARS
- Commercial Item Determinations
- Inconsistencies Between BOM, Proposal, Requirements

Improvement Requires a Joint Effort

Valid to Offer

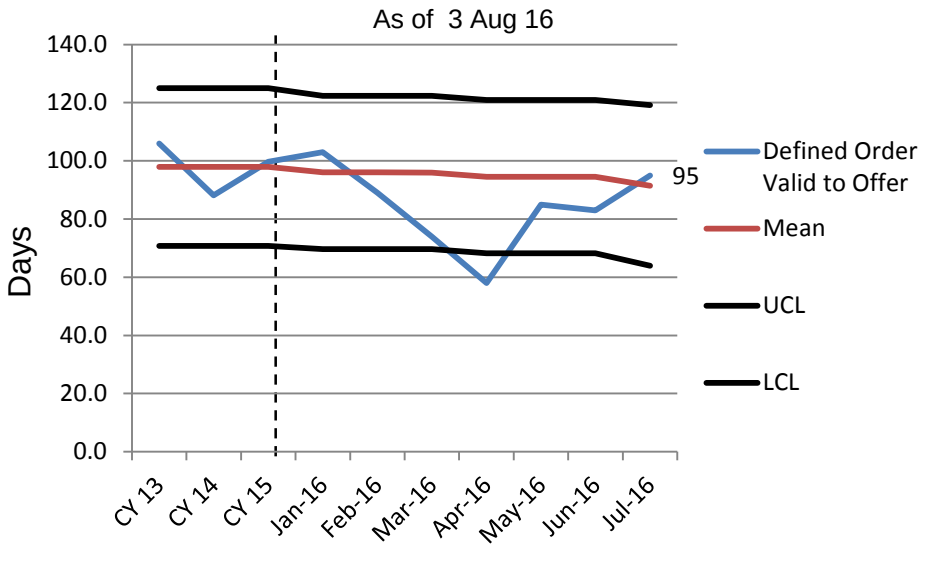
Data Source: DSAMS

Path: 2.0 Case Development > 2.1 Valid to Offer

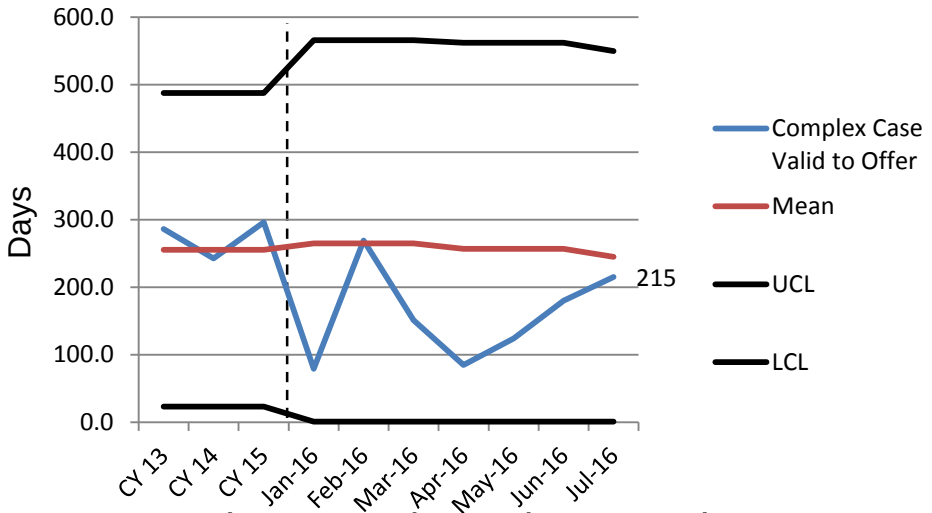


Blanket Order (Cat A) Total = 16

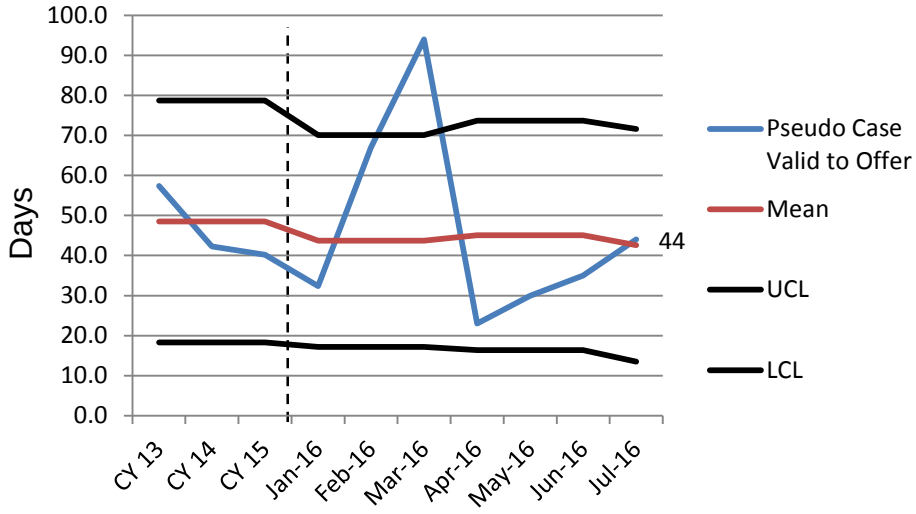
As of 3 Aug 16



Defined Order (Cat B) Total = 55



Complex Case (Cat C) Total = 10



Pseudo Case (Cat D) Total = 10

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2.1 Valid to Offer

2.1.3 Complex Case

Complex Case

Level 4 Metrics

2.1.3.1 Pre LOAD | 2.1.3.2 LOAD | 2.1.3.3 Post Load | 2.1.3.4 Review

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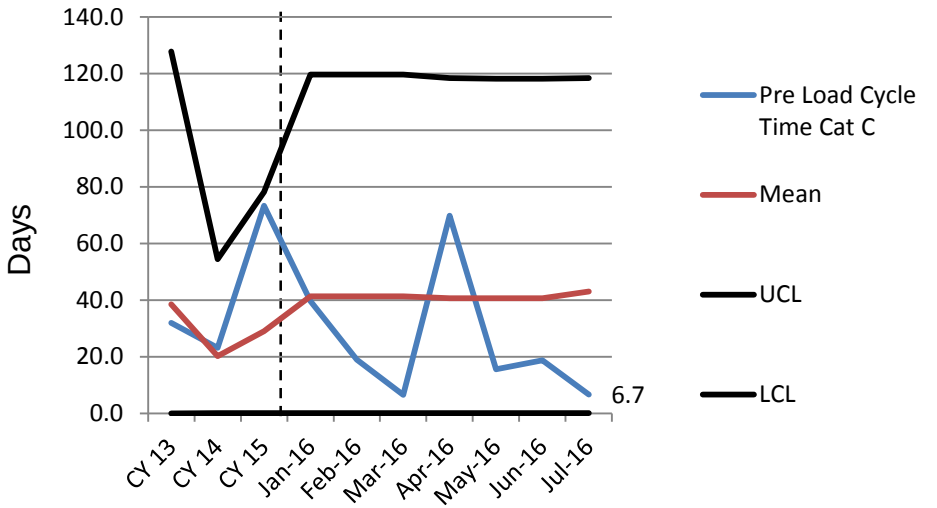
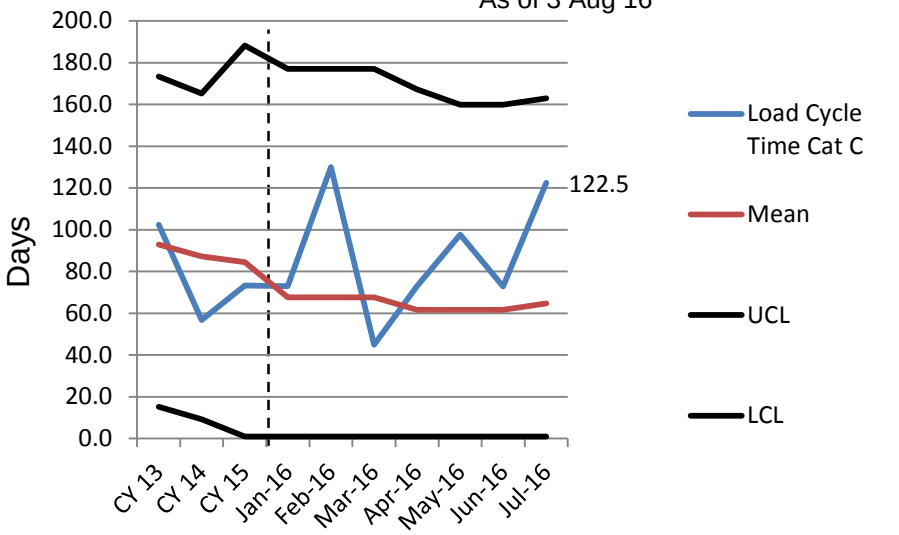
Data Source: DSAMS



Pre LOAD (CAT C)

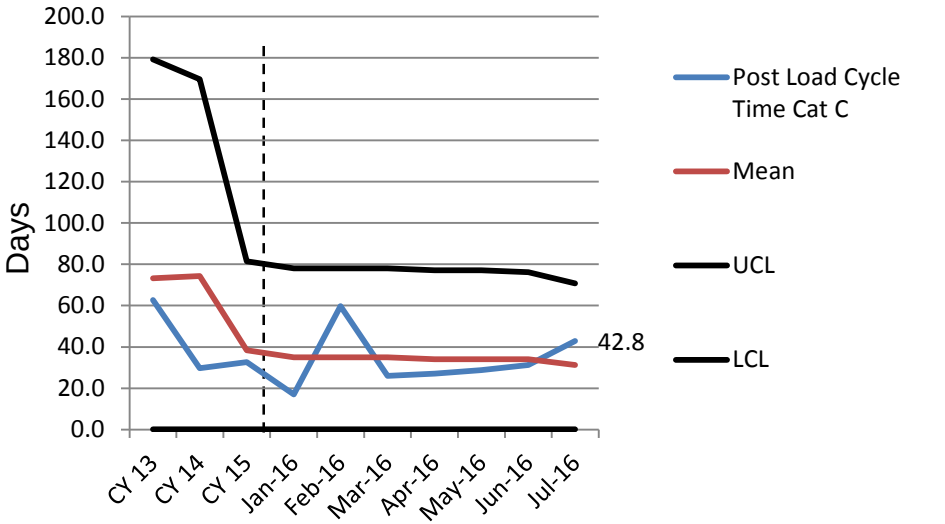
Total = 9

As of 3 Aug 16



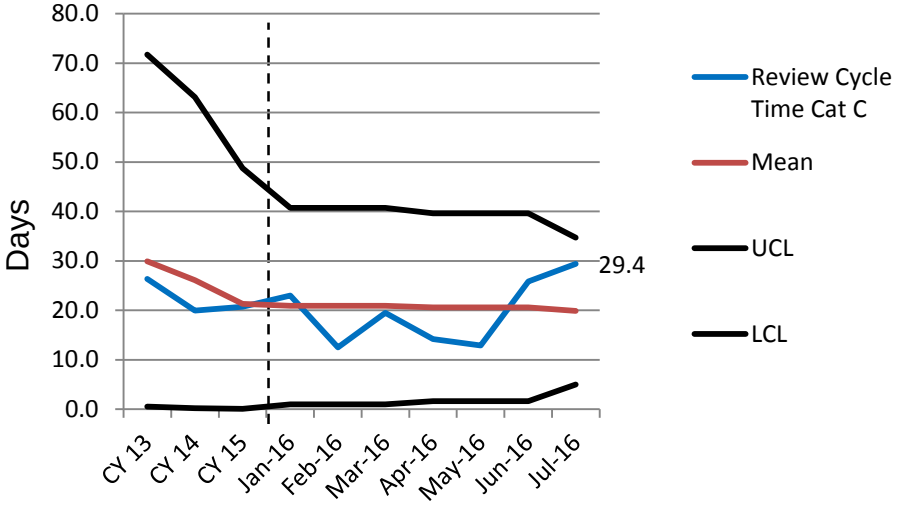
LOAD (CAT C)

Total = 10



Post LOAD (CAT C)

Total = 15



Review (CAT C)

Total = 5

FMS Improvements

Ongoing Initiatives Meeting SECAF/CSAF Mandate

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- **Requirements Stability**
  - LOR receipt to LOA signed metrics developed
  - Manpower Requirements Packages improvements
  - Aged LOAs, CNs, Case Closure actions and 1-star focus
  - AOD and AOD approval levels
  - LOA to baseline and IPD to set conditions
  - FMS Focus Charts to improve C2
  - Apply applicable Acquisition Process ROEs/TTPs

- **Contracting Timeliness**
  - UCA review during FMS Enterprise Executive Review
  - Dedicated FMS Admin resources—DCMA, DCAA, etc.

- **Professionalizing the Workforce (Training Improvements)**
  - Security Cooperation Workforce Database
  - DAWIA certification of FMS Enterprise
  - FMS Enterprise 101 for FLOs and Partners—with DAU, DSCA/ICSC

Good News: We started on this path ~12 months ago!
FMS Enterprise Reviews: Our forum for integration, synchronization

Questions?

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Delivering Airpower Capabilities to Strengthen International Partnerships and Advance National Security

Leadership Strategic Intent/Priorities:

- **Take Care of Our Teammates**
- **Deliver Affordable and Timely Capability**
- **Meet Our Commitments**
- **Maintain Strong Partnerships**
- **Improve**

Air Force's Best Security Assistance Team in the World …Responsive and Trusted


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LIFE CYCLE INDUSTRY DAYS

2016 Life Cycle Industry Days Sensor Open Systems Architecture (SOSA)

Dr. Ilya Lipkin
Lead Manager

Trend in Modern Systems

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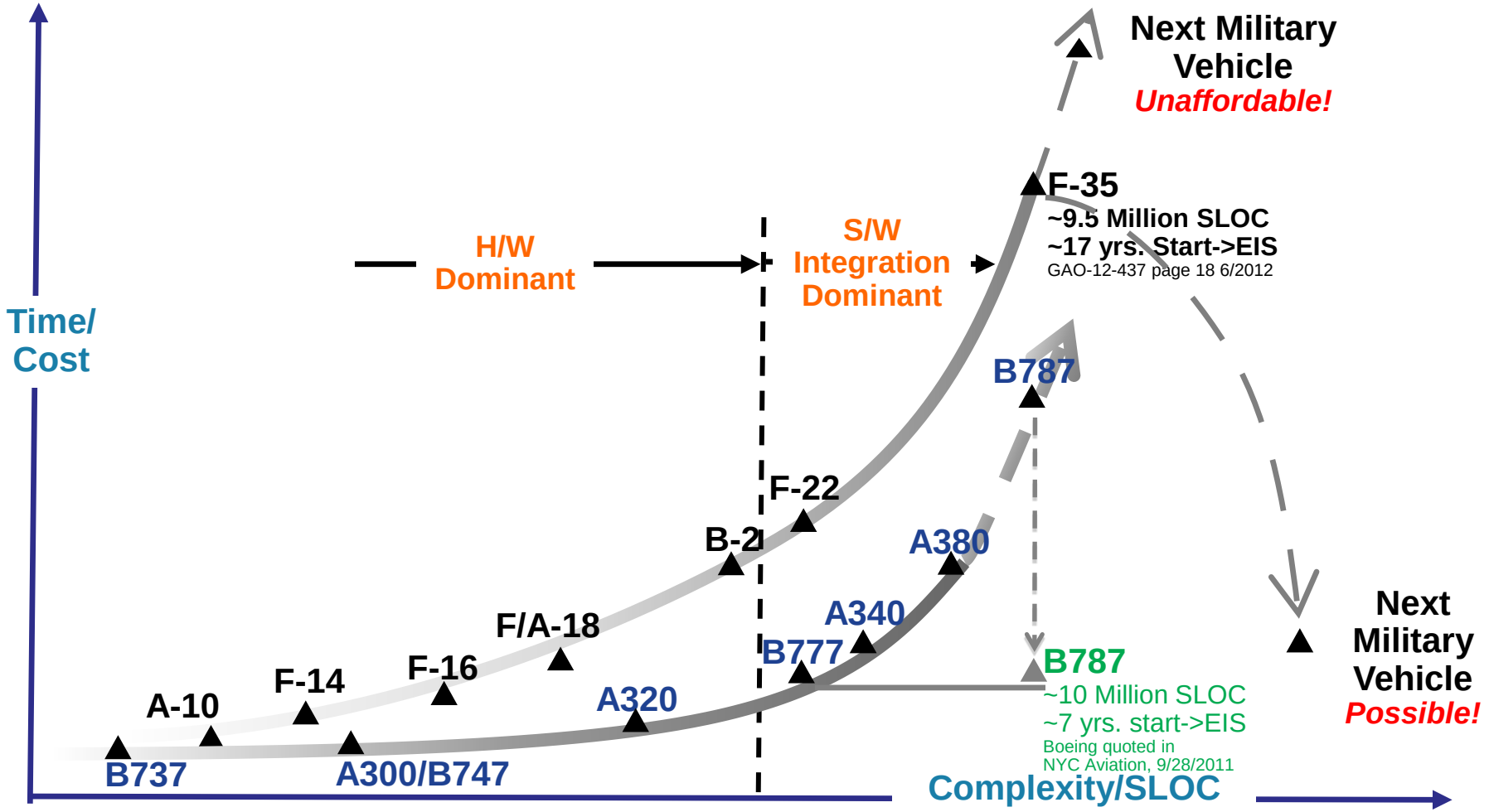

* Source FACE Consortium

What is SOSA ?

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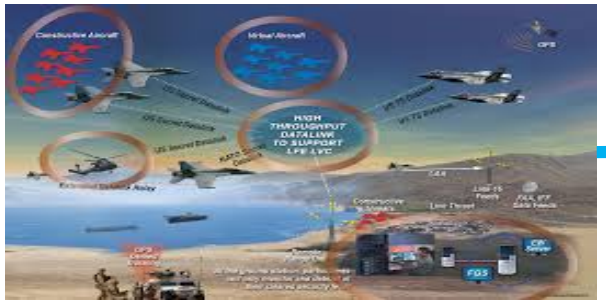
SOSA is a collaborative effort across C4ISR community, AF, DoD in tandem with Industry partners to jointly develop common standards for sensor Sub-systems at the Electrical, Mechanical, HW/SW interfaces for (Radar, SIGINT, EO/IR, EW, Communications) in support of BBP 3.0



1. Current Mission Met Through Point Solutions and Workarounds

2. Decomposition into Functional Components

3. Recomposition
Into Reusable Capabilities

4. Affordable Mission Effectiveness Through Systematic Reuse

PA # 88ABW-2016-2131

Where Do We Start?

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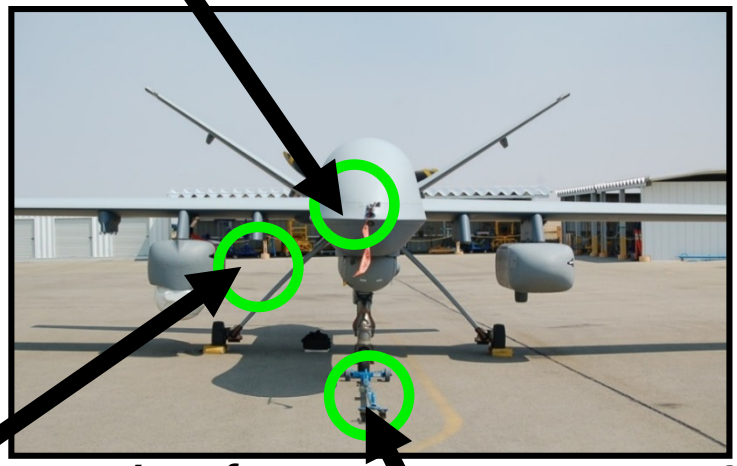
Business Concerns:

- How to meet multiple, often conflicting, standards
- Too many standards which overlap and/or conflict
- Will vendors earn more money or less money with SOSA?
- Cost of developing/ implementing SOSA?
- Don't constrain to eliminate "the art of the possible;" ensure room growth and tech advancement

UAV System Interoperability

STANAG 4586 (C&C)
UCI, UCS

Addresses, Command & Control, Data Dissemination, Comm Links, Weapons & Sensors



Sensors - Interfaces

COARPs (Hanscom)
RF Backend (AFRL), etc

Addresses standards between sensor subsystems

Sensors - Interfaces

SPIES (SAE Aerospace)
FACE, OMS, NGA, MISB, etc

Addresses UAVs, Software Architecture & ISR Sensors

Harmonize Standards for C4ISR

To Enable Taking Back Technical Baseline

Why a SOSA Consortium?

A consortium under the auspices of The Open Group is a "Voluntary Consensus Standards Body" as defined by the National Technology Transfer Act and Office of Management and Budget (OMB) Circular A-119 with the following attributes:

- Openness
- Balance of interest
- Due process
- An appeals process
- Consensus
- Enabler for consortium participation by US agencies
- Foundation of consortium status under National Cooperative Research and Production Act (NCRPA)

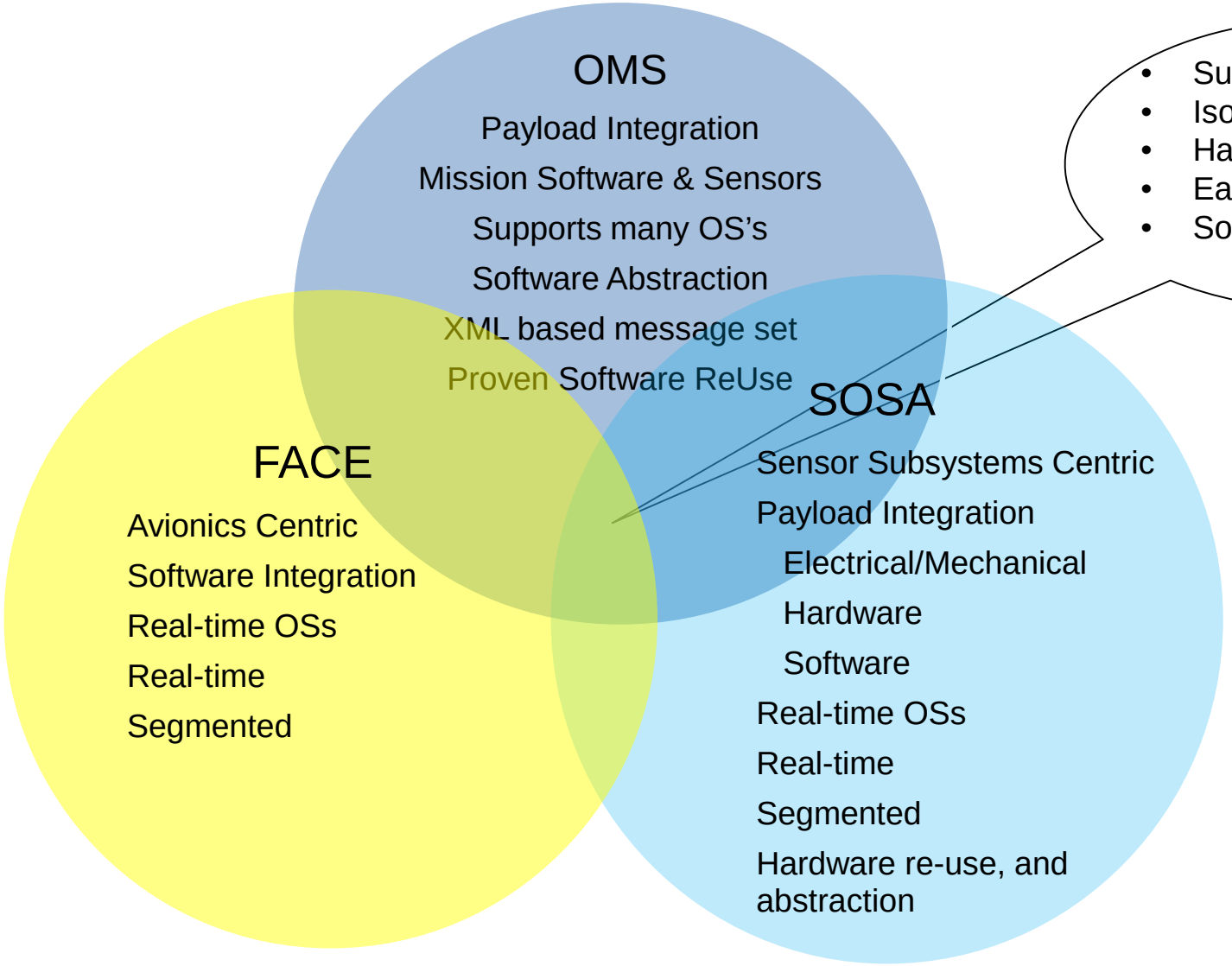
An Independent Consortium Provides an honest broker between Industry and Government partners

Open System Architecture Efforts

- **Future Airborne Capability Environment (FACE) provides real-time, including safety-critical, capabilities for core avionics with rapid software integration and re-use**

- **Open Mission Systems (OMS) provides near-real-time capabilities for rapid payload/sensor integration and re-use**

Quick Comparison Table



Vision, Goals & End Products

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VISION - Business/acquisition practices and a technical environment for sensors and C4ISR payloads that foster ***innovation***, industry ***engagement***, ***competition***, and allow for ***rapid fielding*** of cost-effective capabilities and platform mission reconfiguration while ***minimizing logistical*** requirements

Open:	***Standardized:***	***Harmonized:***	***Aligned:***	***Cost Effective:***	***Adaptable:***
Vendor- and platform-agnostic open modular reference architecture and business model	Software, hardware, and electrical-mechanical module interface standards	Leverage existing and emerging open standards such as: FACE, OMS, SPIES, CMOSS, VICTORY, VITA	Consistent with DoD acquisition policy guidance	Affordable C4ISR systems including lifecycle costs	Rapidly responsive to changing user requirements

- **SOSA Working Groups**
  - **Enterprise (Industry chair)**
  - **Hardware (Government chair)**
  - **Software (Industry chair)**
  - **Business (Gov/Industry chair)**
  - **Electrical/Mechanical (Industry chair)**
- **SOSA End Product**
  - **A set of technical and business reference architectures, IP business case, an acquisition strategy document, and a tailorable request for proposal (RFP) technical package**

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SOSA Organizations

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Government Organizations	Industry Organizations				
AFLCMC	Abaco Systems	General Atomics	Leidos	Sierra Nevada Corporation	Wind River Systems
AFRL	BAE Systems	General Dynamics	Lockheed Martin	Sikorsky Aircraft	Zodiac Data Systems
AMRDEC	Boeing	Georgia Tech	Mercury Systems	SimVentions	
CERDEC	CALCULEX	Green Hills Software	Northrop Grumman	Southwest Research Institute	
Joint Tactical Networking Center	Curtiss-Wright Controls Defense Solutions	Harris Corporation	OAR Corporation	TES-SAVI, Inc.	
NAVAIR	DDC-I, Inc.	Honeywell Aerospace	Presagis USA, Inc	Textron Systems	
PEO Aviation	DornerWorks	Intrepid	Raytheon	Trideum Corporation	
	Elbit Systems of America	KEYW Corporation	Real Time Innovations	UCS Advisory Group	
	GE Aviation	L-3 Communications	Rockwell Collins	Vencore	
	GECO	LDRA Technology	SELEX Galileo Inc.	VTS, Inc.	

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SOSA Scope and Working Groups

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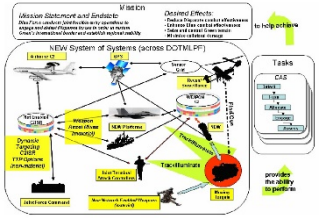
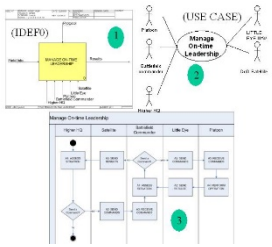
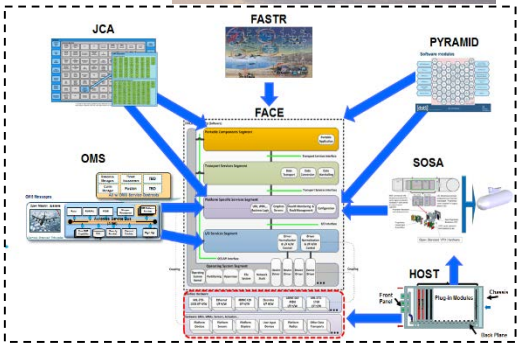


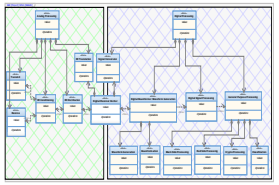


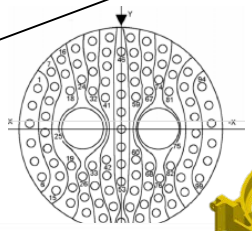


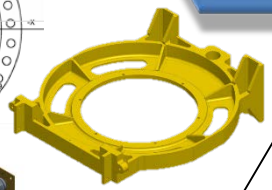
Data Rights
IP
Contracting Guide

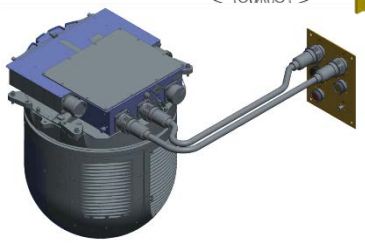
SOW
CDRL
DID
Section L, M Support

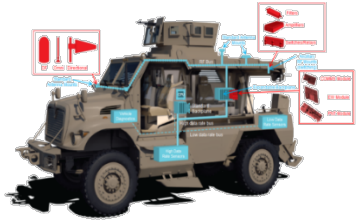
Marketing
Outreach
Business Development
Open Acquisition Guide

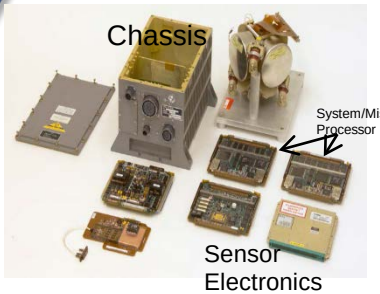


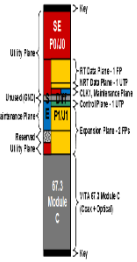












SOSA Draft Overview

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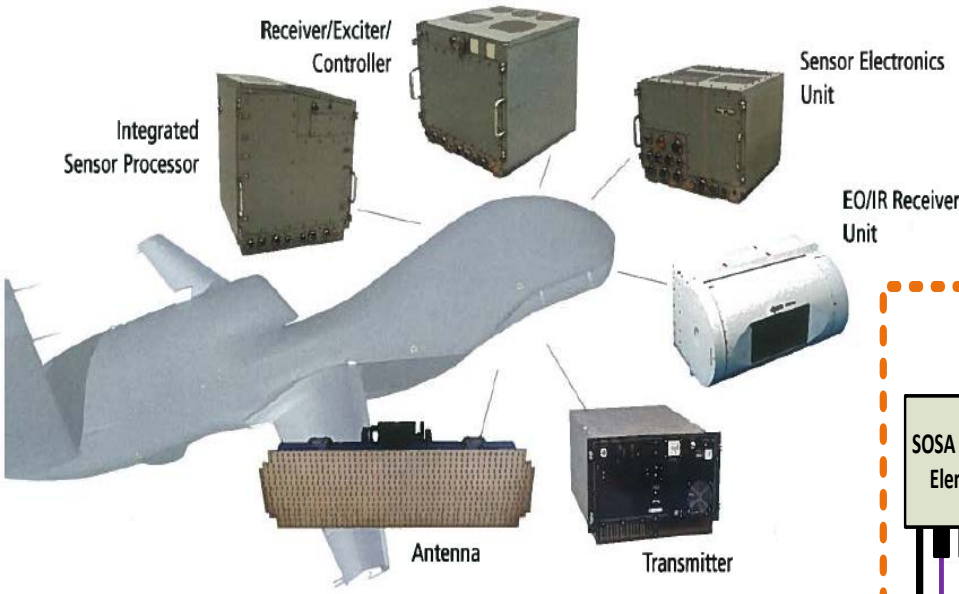
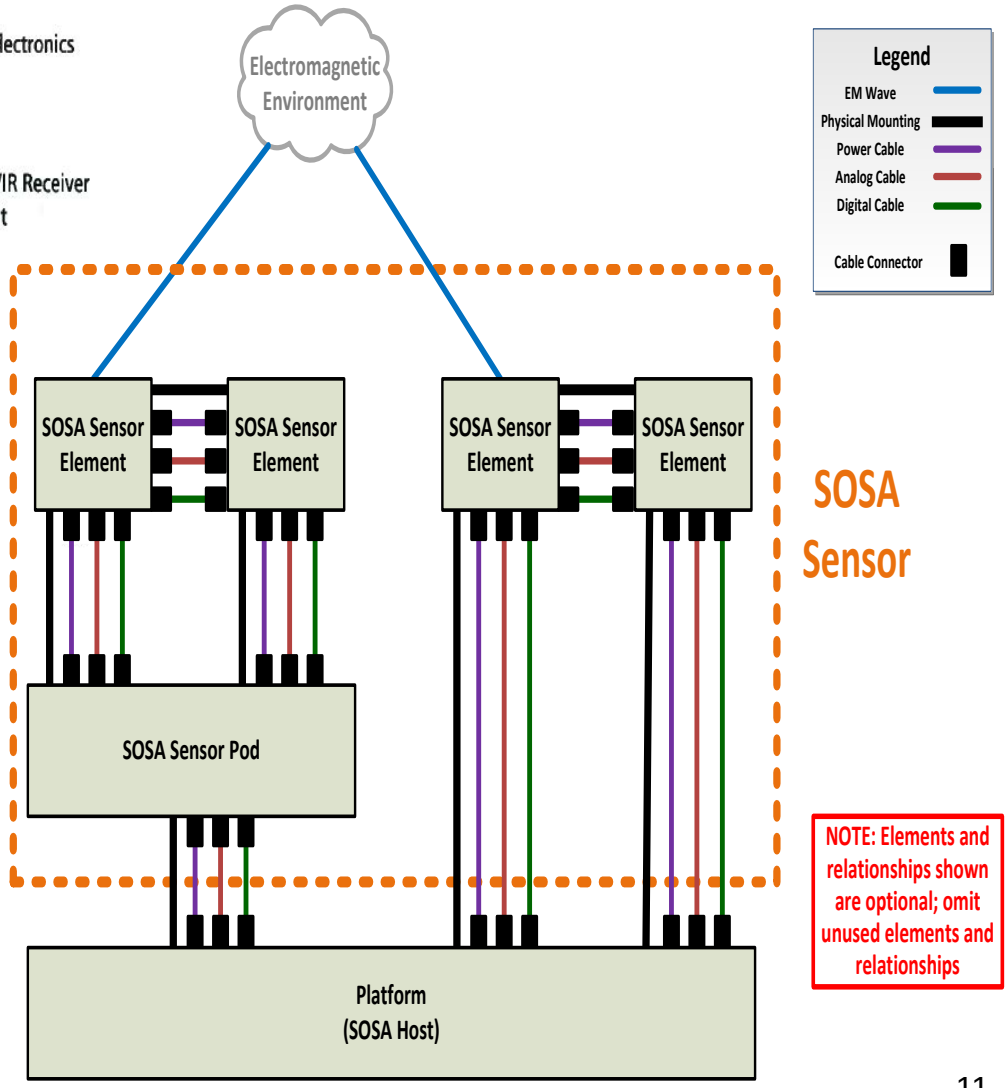


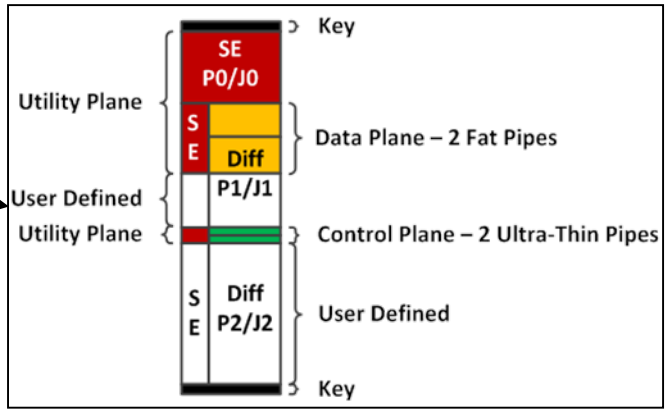


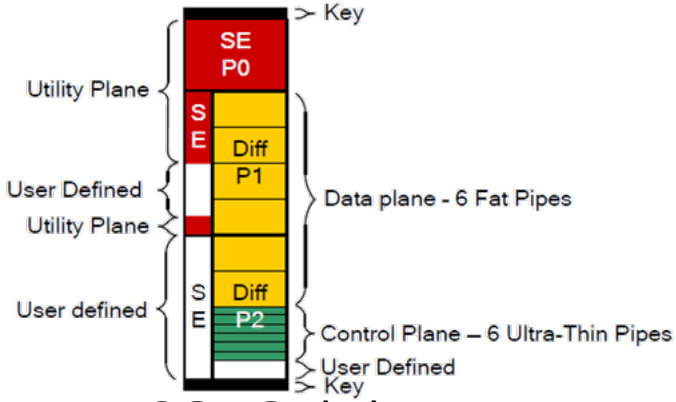
Air Force, Navy, and Army Hardware Alignment

Current Hardware Alignment effort between AFRL, NAVAIR PMA209, NRL, and Army CERDEC

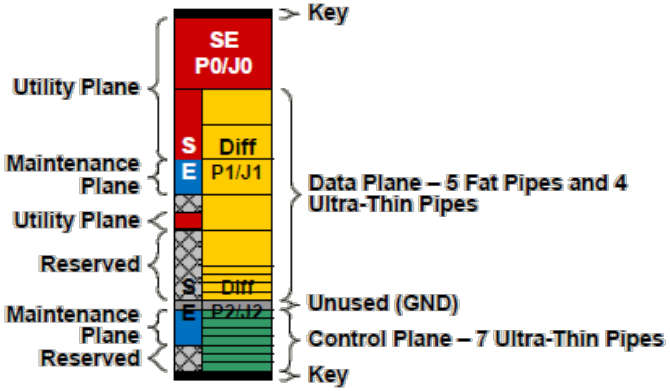
Slot Profiles

Agreement between NAVAIR and CERDEC to use the same Payload profile for HOST and CMOSS

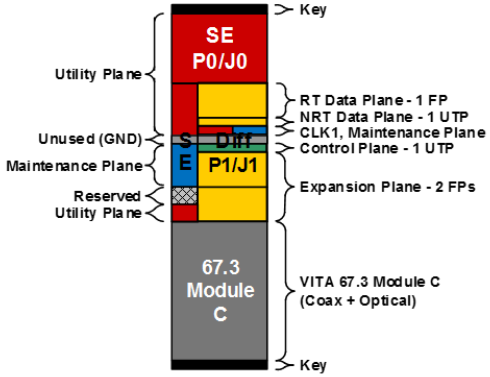




HOST Switch



CMOSS Switch



CMOSS RF Payload

Electrical/Mechanical Decomposition – Platform to Pod

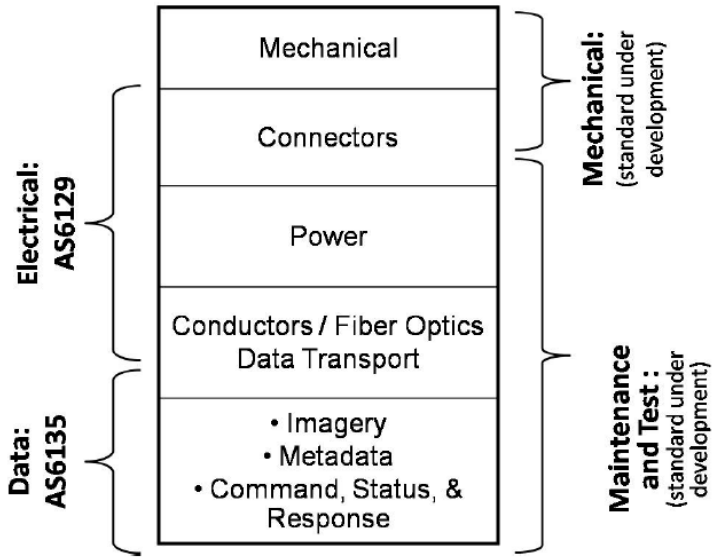
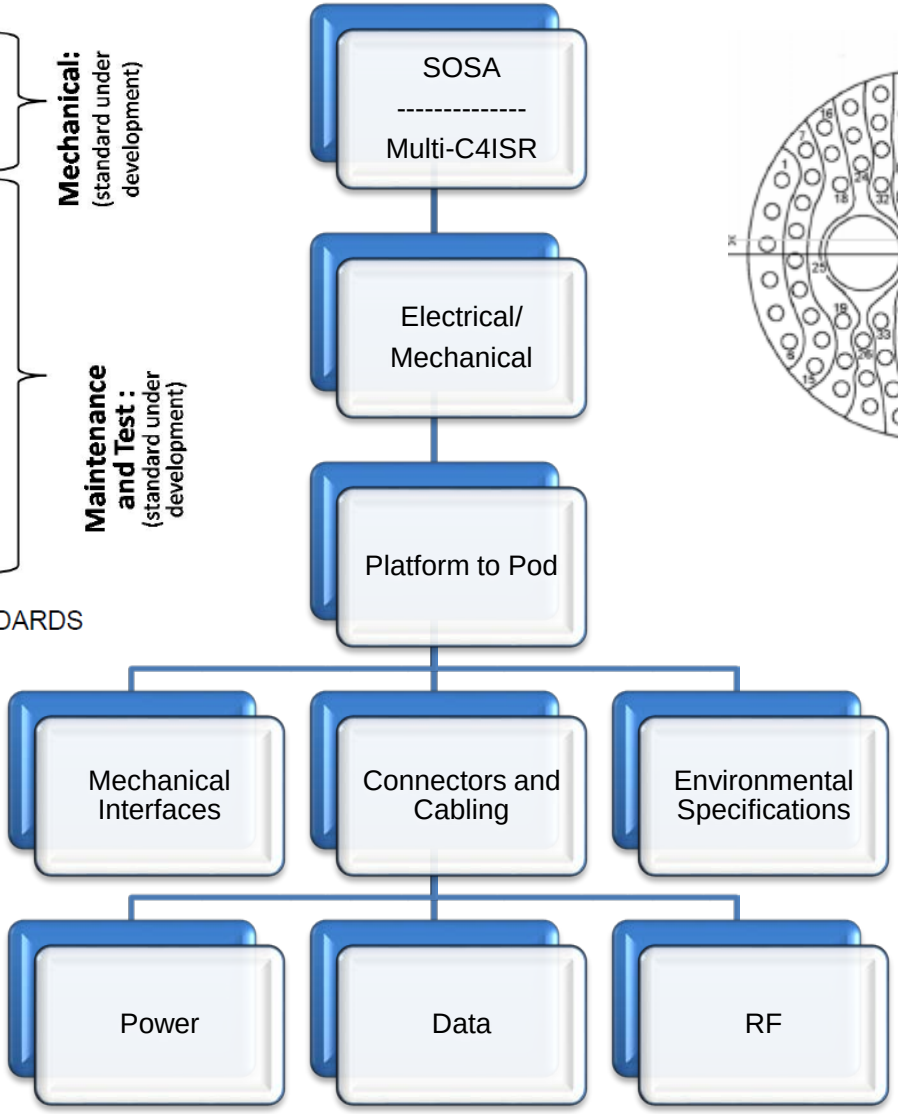
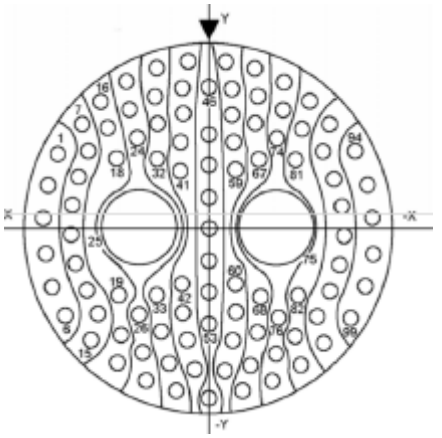


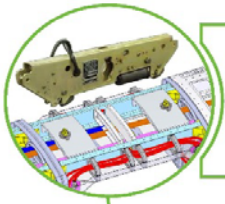
FIGURE B1 - RELATED SAE STANDARDS



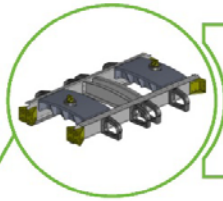


Leveraging and Supporting AM-ISR POD

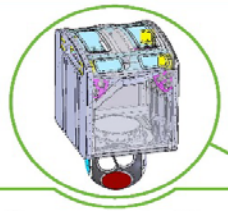
3-5 Reconfigurable Sections: Pod scales from 3-5 sections (nosecone, front, middle, rear, tailcone), using a center strongback and bulkheads for mounting.



Adaptable Aircraft Mounting: Enables use on multiple manned and unmanned aircraft, including BRU-12, BRU-14, BRU-32.

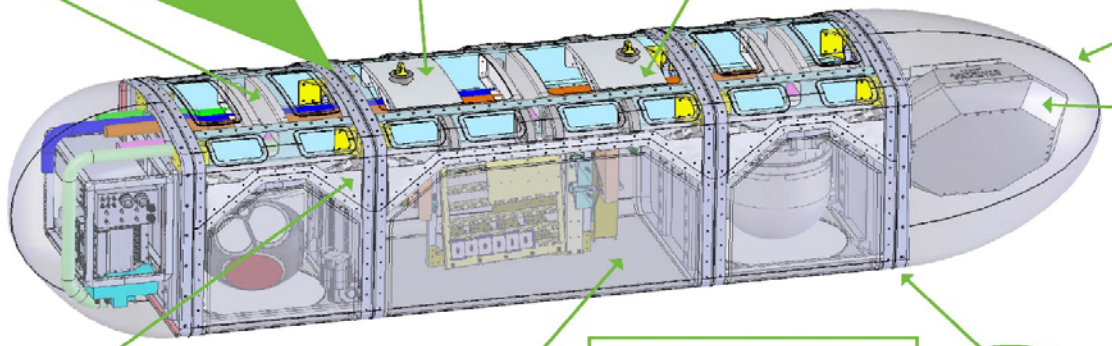


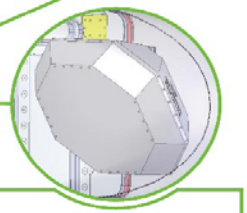
Innovative Rib-and-Beam Design: Enables single design to grow or shrink in length (with additive re-tooling) to meet platform/mission needs.



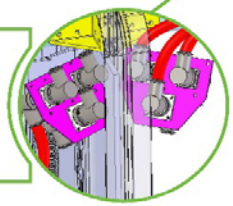
Multipurpose Payload Bays: Each bay can hold sensors, processors, RATs, ECUs, electronics, antennas, etc. Precision rails with moveable shelves enable precise equipment placement. Retractable elevators are used to move turreted sensors into position. Each bay fairing section can be RF-or optically-transparent as required. Individual modules can be pressurized as required.

Intelligent Pod: Includes simple health, status, and configuration GUI for Android and web browsers, enabling technicians to rapidly and correctly configure and troubleshoot 100s of configurations in the field.





Supports Wide Variety of Payloads: Including power generators (RATs) and ECUs. Also enables easy mounting of Antennas and RF-transparent radomes/fairings. UHF Antenna shown.



Standards-Based, Plug-and-Play Interface Panels: Provides many ways for user to quickly install new payloads and conduct new missions.

RF-transparent section and access panels, facilitate rapid reconfiguration and maintenance to provide unobstructed fields of view. Optical windows are also possible.

Use of Agile and Additive Manufacturing: Non-structural components and tooling made using additive manufacturing. Digital Thread and Unlimited Rights enables multiple vendors for LRIP and full production.

Takeaway

- **SOSA has garnished support across numerous Government and Industry Organizations**
- **SOSA aim is to collaborate and leverage already existing standards and work more closely with other Open Architecture efforts (Not to Reinvent the Wheel)**
- **SOSA goal is to pivot toward Industry First standards and solutions to leverage faster technology refresh cycles**
- **SOSA will support implementation of Multi-INT Payload Integration for Current Obsolescence and Next Generation C4ISR Systems**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LIFE CYCLE INDUSTRY DAYS

2016 Life Cycle Industry Days
Imaging & Targeting Support

Maj Kalun Schmidt

Overview

- **Intelligence, Surveillance and Reconnaissance & Special Operations Forces Directorate**
  - **ISR Sensors & Foreign Military Sales Division**
  - **Advanced Technologies Branch**
  - **Imaging and Targeting Support Section**
- **Geospatial Intelligence Capabilities Working Group**
  - **Analytical &Technical Element & Executive Element cycle of life**
  - **Imaging and Targeting Support Section, Research Development Test and Evaluation, airborne sensor portfolio**
  - **Project selection process**
- **Imaging and Targeting Support FY18 Request For Information**

Acronyms

U.S. AIR FORCE

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- ISR - Intelligence, Surveillance and Reconnaissance
- SOF - Special Operations Forces
- FMS - Foreign Military Sales
- I&TS - Imaging and Targeting Support
- GCWG – Geospatial Intelligence Capabilities Working Group
- GCWG A&TE – GCWG Analytical &Technical Element
- GCWG EE – GCWG Executive Element
- RDT&E - Research Development Test and Evaluation
- RFI - Request For Information
- GIISR – Globally Integrated ISR
- HSI - Hyperspectral Imaging
- FOPEN - Foliage Penetration
- SAR – Synthetic Aperture Radar
- IMINT – Image Intelligence
- SYERS – Senior Year Electro-Optic Recon System
- NIISR – National Imagery Interpretability Rating Scale
- PACOM – Pacific Command
- AOR – Area of Responsibility
- DEM – Digital elevation Model
- BPEN – Building Penetration
- MB SAR – Multi-Band SAR
- ACC – Air Combat Command
- AFSOC – Air Force Special Operations Command

- OGA – Other Governmental Agency
- AFRL – Air Force Research Lab
- SAF/AQ – Secretary of the Air Force for Acquisition
- PE – Program Elements
- TRL – Technology Readiness Level
- PoP – Period of Performance
- PEO – Program Element Officer
- CM – Common Module
- CRADAs – Cooperative Research and Development Agreement
- OMS – Open Mission Systems
- SOSA – Sensor Open System Architecture
- LIDAR – Laser Radar
- MSI – Multispectral Imaging
- EO/IR – Electro Optical /Infrared
- PCPAD – Planning and Direction, Collection, Processing and Exploitation, Analysis and Production, and Dissemination
- ATIC – Advanced Technical Intelligence Center

Mission

ISR and SOF Directorate
Equip ISR & SOF warfighters to dominate the battlespace

ISR Sensors & FMS Division
Develop, acquire, modernize, integrate, and transition aerospace ISR sensors and associated technologies in support of national, international and warfighter needs

Advanced Technologies Branch

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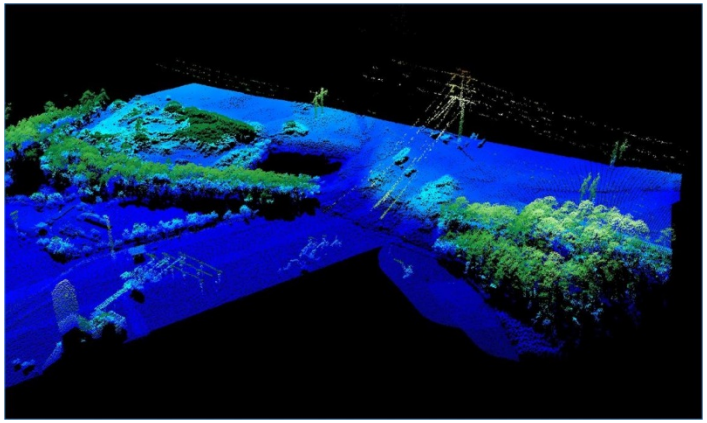
Manages efforts to enhance our warfighter's precision engagement capabilities by leveraging advanced technologies and processing techniques to rapidly develop, acquire, and modernize ISR and SOF sensors and platforms



Imaging and Targeting Support

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- **Technology Development**
  - Aggressively identifies, assesses, plans, advocates, demonstrates, and develops technologies supporting ISR & SOF Directorate capability needs
- **Imaging and Targeting Support**
  - Develops and demonstrates next-generation, persistent, wide area surveillance, and common imagery reconnaissance sensor capabilities (radar and electro-optical systems), including sensor data processing, for multiple airborne platforms, as well as sensor products to aid in rapid targeting (geolocation models, sensor-based exploitation tools, sensor networking capabilities)
- **COMPASS BRIGHT**
  - develops, demonstrates, and rapidly transitions advanced Air Force-specific Signals Intelligence (SIGINT), to include Communications Intelligence (COMINT), Electronic Intelligence (ELINT), Audio, Analytics, Special Signals of Interest, and Measurement and Signature Intelligence (MASINT)
- **Operational Reconnaissance (Ops Recce)**
  - Improves overall USAF ISR capability through development, testing, demonstration and implementation of sensor efforts across all non-traditional ISR platforms
- **Special Projects**
  - Demonstrates new ISR/SOF concepts leveraged from OGA's at the SAP/SAR levels

Imaging & Targeting Support Portfolio

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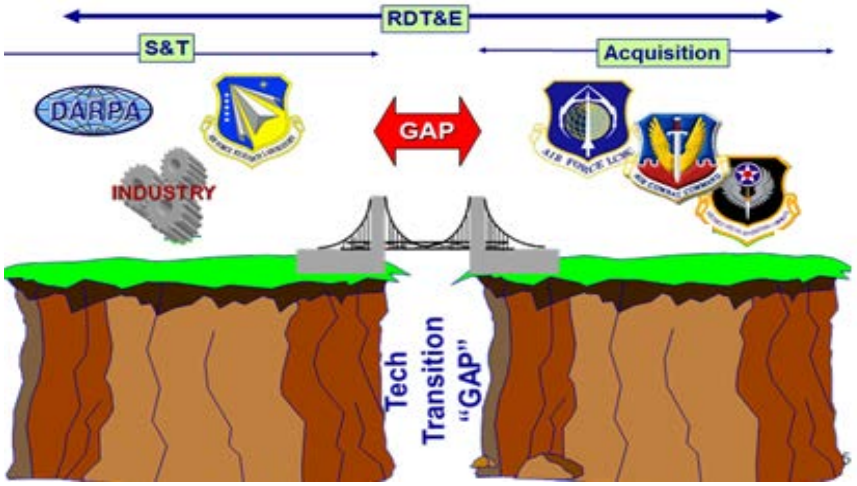
Program Description

- Addresses GIISR capability gaps as prioritized by GCWG
- Pre-Milestone B Portfolio of Projects (Perpetual)
- Develop & Demonstrate Common GEOINT Sensors for Multiple Airborne Platforms
  - Hyperspectral Imaging (HSI) Development
  - Foliage Penetration (FOPEN) SAR Development
  - Obscured Target Identification Capabilities
- Develop & Demonstrate Advanced Airborne Sensor Processing Tools
  - Advanced Data Processing Capabilities
  - Enhanced IMINT Product Quality

I&TS View



Portfolio Examples

- HEIRS: High-Altitude Extended Imaging Range Sensor
  - Extended U-2 SYERS-2C daytime NIIRS 5 range by 20km / 60 km (high / low visibility)
  - Estimate 20-30% more targets in PACOM AOR
  - Squeezes max performance out of existing aperture
- KeyRadar: Next Gen Multi-Band/Multi-Functional SAR
  - All-weather/all-light ISR, DEM extraction under foliage, terrain characterizations, FOPEN/BPEN, manmade objects and coherent/polarimetric change detection
  - Evolution of rack mounted MB SAR to a fully self-contained fly-away capability in an unpressurized pod

Specifics

- Authority: GEOINT Capabilities Working Group, Memo to Proceed
- Major Customers: ACC, AFSOC, OGAs, AFRL, SAF/AQIJ, 25th AF
- Contractor: Multiple Primes
  - KeyRadar– KEYW
  - Common Module – Raytheon
  - PETRA – Defense Engineering Corporation
  - Si:Ga FPA – DRS Sensors & Targeting Systems
  - HEIRS – UTC Aerospace Systems

GEOINT Capabilities Working Group

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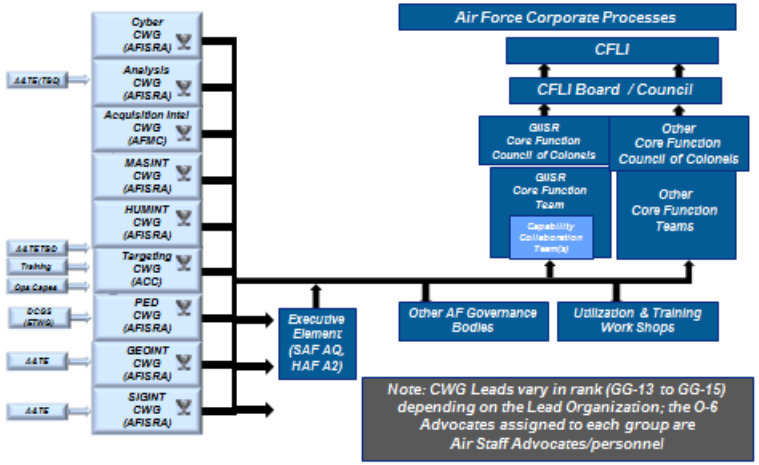
Description

- Forums to corporately prioritize and plan AF airborne GEOINT capability solutions utilizing RDT&E investments
- Provide AF decision-makers a comprehensive capabilities-based, architecturally supportable investment strategy consistent with prioritized AF, Joint, and National user req'ts
- **Analytical and Technical Element (A&TE) reports to the integrated ISR RDT&E Executive Element (EE)**
- Executive sessions incorporate input from the A&TEs and provide decision-makers with a consolidated way forward for ISR airborne sensors and PED RDT&E efforts

CWG Framework



Charter

- GCWG Charter - Signed 12 Mar 13 (update due this year)

A/TE VOTING MEMBERS

- AF/A2CC
- SAF/AQIJ
- AF GIISR/CFT
- ACC/A2/A5/8/9 (Combined vote; ACC/A5I Chair)
- AFLCMC/WI Division Level
- AFSOC/A2O/A2X (Combined vote)
- 25AF/A5/8/9

A/TE ADVISORY MEMBERS

AT&L, USD(I), AF/A2 Staff
AFMC/A2
AFLCMC/PEO (As Appropriate)
AFGO
25AF/A3/NICC
480TH ISRW, 363RD IW
NASIC
AFRL
COCOM AF Components
NRO, NGA, AFR, ANG

Timeline

2016

Sep: Fall AT&E to define FY18 Focus Areas
Oct: Industry Day
Nov: Release I&TS RFI via FedBizOps

2017

Jan: I&TS RFI Reponses Due
Feb: I&TS RFI Reponses Evaluation
Mar: Spring GCWG A&TE Workshop at WPAFB
Apr: GCWG A&TE Project Scoring
Jun: GCWG EE Electronic Staff Package Coord
Jul : SAF/AQI issue "Memo to proceed"

GCWG Charter Language

- PURPOSE: Provide a forum to corporately ***prioritize and plan*** Air Force (AF) airborne GEOINT capability solutions utilizing Research, Development, Test and Evaluation (RDT&E) investments.

- GOAL: To provide AF decision-makers a comprehensive capabilities-based, architecturally supportable ***investment strategy*** for AF airborne GEOINT systems consistent with prioritized ***AF, Joint, and National users' requirements***. This charter does not authorize movement of resources across PEs; rather, it enables synchronization across Program Elements (PEs) within a common planning and prioritization framework.

Program Structure
(GCWG/I&TS Annual Cycle of Life)

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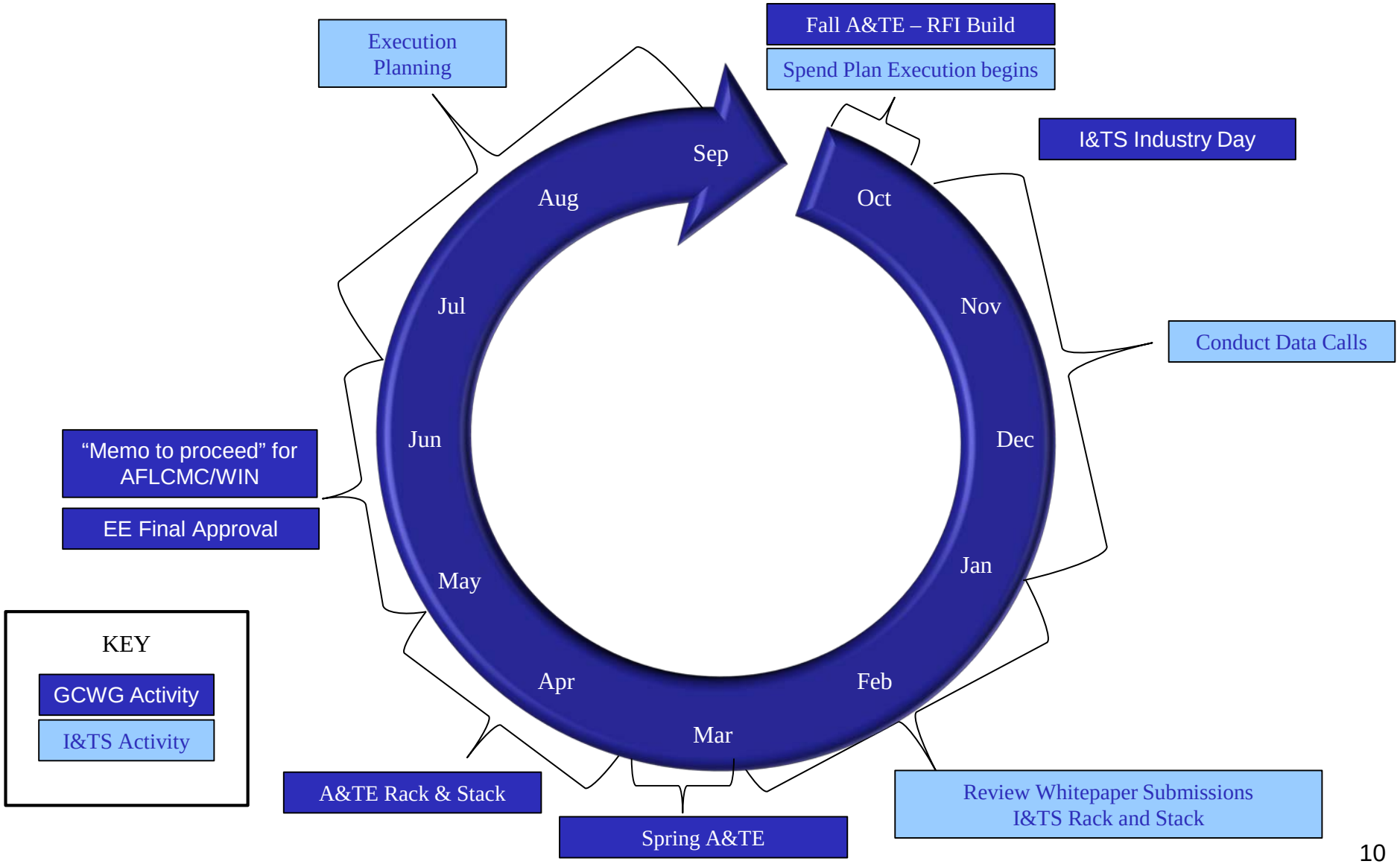

I&TS ANNUAL RFI

- The published RFI mandates that submissions adhere to specific requirements; although the details of some requirements will vary yearly depending on the DOD and fiscal environment
  - **Categorization** – whitepapers must pertain to airborne GEOINT sensing and processing
  - **Technical Maturity** – Potential projects must transition technology from TRL 4/5 to TRL 6/7
  - **Cost** – cost requirements generally $2-3M per year, depends on program budget
  - **Schedule** – schedule requirements are generally 12-24 months
  - **Warfighter Needs** – whitepapers must adhere to one or more unclassified capability focus areas published in the RFI, derived from the AF Major Commands (MAJCOM) and Global Integrated ISR (GIISR) capability needs

FY17 Focus Areas

A. Improve GEOINT capabilities in anti-access, denied areas and contested environments,

B. Support find, fix, track, target, assess in near real time for airborne ISR assets,

C. Detect and/or characterize camouflaged, concealment and deception targets,

D. Detect, characterize and track dismounts in densely populated and rural areas,

E. Detect, identify and track personnel of interest,

F. Enhance all-weather motion imagery capabilities,

G. Support multi-intelligence collection in triple canopy jungle,

H. Enhance surveillance on open seas and littoral approaches,

I. Collect and characterize information on underground facilities,

J. Enhance current data throughput,

K. Enhance on-board data storage capabilities,

L. Enhance on-board real-time processing for correlation/fusion of multi-source sensor data and object/target recognition capabilities.

EXAMPLE TRI-CHART

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OPERATIONAL OVERVIEW DIAGRAM

Lead Organization / Contractor
AFLCMC/WINA, OGA / Raytheon

Project Schedule

Total Funding: Project Cost and PoP
(Breaks down total cost and period of performance)

Quarter	1	2	3	4	5	6	7	8
Project milestone 1	▲	▲						
Project milestone 2		▲	▲					

Project Overview

- Project Description
  - Describes the technical and programmatic work being done to the project
  - Brief background and overview of technology being developed
- Capability Delivered
  - Advancement of technological capabilities delivered to warfighter at culmination of project
- GIISR Gaps Addressed
  - RFI Focus Area(s) which project fills or helps to address
- Transition Avenues
  - Transition potential
  - COCOM Champion/Sponsor
  - POM inputs required
- End to End Impact
  - DCGS/NASIC Impacts
  - Effect on/to life cycle costs
  - Effect on reliability and/or maintainability

BLUF Statement of project capabilities/impacts

I&TS Evaluation Process

- **Phase I: Basic Criteria Verification**
  - **Categorization – Airborne GEOINT sensing/processing**
  - **Technical Maturity – Transition of TRL 4/5 to TRL 6/7**
  - **Cost – $2-3M per year**
  - **Schedule – 12-24 month PoP**
  - **Warfighter Needs – Adhere to MAJCOM and/or GIISR capability focus area**
- **Phase II: Whitepaper Evaluation**
  - **Technical Assessment**
  - **Programmatic Assessment**
- **Phase III: Whitepaper Prioritization**
  - **Further disqualification of whitepapers based on more in-depth technical and transitional analysis**
  - **Production of the I&TS prioritized list**
  - **Project Tri charts and whitepapers prepped for GCWG A&TE delivery**

A&TE Project Selection Process

- **Phase I: (Pre-A&TE): Mid Mar**
  - Project Tri Charts and whitepapers are distrusted to A&TE
  - ISR-CART scoring tool and voting criteria established
  - A&TE Voting members submit preliminary scores
- **Phase II: (A&TE): Late Mar**
  - Project Tri Charts are briefed in initial I&TS prioritized order
  - I&TS facilitates discussions on each project & disconnects from preliminary voting
- **Phase III: (Post-A&TE): Early 1 Apr**
  - A&TE members finalize their votes on ISR-CART
  - VTC is held to confirm Rankingck results
  - All scoring ties are resolved
  - Ranked order can be adjusted if all members agree

Executive Element Process

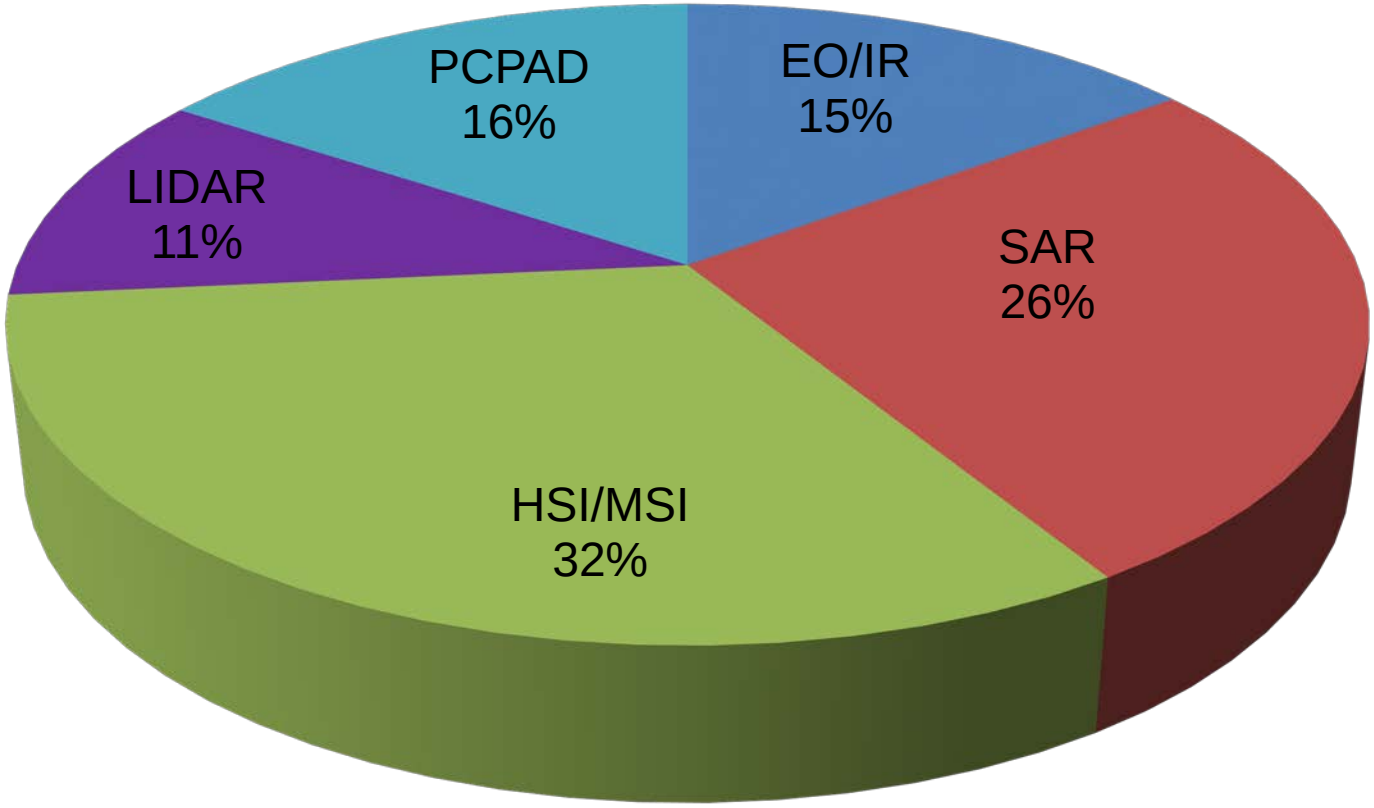
- **Project Approval: Mid to late June**
  - **A&TE Chair forwards recommended priorities list**
  - **Memo to Proceed signed and forwarded to ISR SOF PEO**
  - **I&TS project execution begins**
- **GCWG EE VTC: Mid July**
  - **I&TS Acq Strategy is briefed to ISR SOF PEO for approval**
  - **Entire GEOINT Portfolio briefed**

I&TS Portfolio Manger Goals

- **Balance while addressing shortfalls**
  - **Tech Push, Pull and Maturation**
  - **Phenomenology mix**
  - **Low, medium & high altitude**
  - **Financially healthy**
  - **Partnering**
    - **OGA & DoD**
    - **Lab, Academia & Industry - CRADA/SBIR etc.**
  - **Transition-ability**
  - **Multi INT solutions**
  - **OMS, SOSA compliance**

I&TS Investment

Current Project Phenomenology Mix



FY18 GCWG RFI

- **Fall GCWG A&TE: 14/15 Sep 16**
  - **ISR Gaps discussed in detail**
  - **Next cycle focus areas identified**
  - **RFI written and approval for release**
- **I&TS Industry Day: Advanced Technical Intelligence Center (ATIC), 10 Nov 16**
  - **NEW Approach**
  - **Discuss/refine RFI intent**
  - **AF ISR sensor way-ahead**

Summary

- **ISR SOF PEO structure**
  - **AFLCMC/WIN, WINA and I&TS**
- **GCWG**
  - **I&TS RDT&E airborne sensor portfolio**
    - **Categorization** – whitepapers pertain to airborne GEOINT sensing and/or processing
    - **Technical Maturity** – Project must transition technology from TRL 4/5 to TRL 6/7
    - **Cost** – cost requirements generally $2-3M per year, depends on program budget
    - **Schedule** – schedule requirements are generally 12-24 months
    - **Warfighter Needs** – whitepapers must adhere to one or more unclassified capability focus areas published in the RFI
  - **GCWG A&TE and EE cycle of life**
  - **GCWG project selection process**
- **I&TS FY18 RFI**
  - **Fall Industry Day, ATIC, 10 Nov 16**
  - **RFI released mid Nov 16**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